JAN 124108

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SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: R GITOMER Examiner # : _____ Date: 6/8/09

Art Unit: 1657 Phone Number 30 _____ Serial Number: 10/035,277

Mail Box and Bldg/Room Location: 3C71 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

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Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____

_____

Earliest Priority Filing Date: _____

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

JAN

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Structure (#) _____

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PTO-1590 (8-01)

STIC Search Report
Biotech-Chem Library

STIC Database Tracking Number: 124108

TO: Ralph J Gitomer
Location: 3d65 / 3e71
Art Unit: 1651
Thursday, June 10, 2004

Case Serial Number: 10/035277

From: Noble Jarrell
Location: Biotech-Chem Library
Rem 1B71
Phone: 272-2556

Noble.jarrell@uspto.gov

Search Notes

Search and Information Resources Administration

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 This file contains CAS Registry Numbers for easy and accurate
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'OBI' IS DEFAULT SEARCH FIELD FOR 'HCAPLUS' FILE

=> d all l1 tot

L1   ANSWER 1 OF 9  HCAPLUS  COPYRIGHT 2004 ACS on STN
AN   1996:228304  HCAPLUS
DN   124:328215
ED   Entered STN:  18 Apr 1996
TI   Chemiluminescence emission during reactions between superoxide and
     selected aliphatic and aromatic halocarbons in aprotic media
AU   Shoaf, Antony R.; Shaikh, Ali U.; Ford, Joseph H.; Carlson,
     William C.; Steele, Richard H.
CS   Bowman Gray School of Medicine, Wake Forest University, Winston-Salem, NC,
     27157, USA
SO   Journal of Bioluminescence and Chemiluminescence (1996), 11(1), 9-22
     CODEN: JBCHE7; ISSN: 0884-3996
PB   Wiley
DT   Journal
LA   English
CC   74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other
     Reprographic Processes)
AB   The reactions between superoxide free radical anion (·O-2) with the
     halocarbons CCl4, CHCl3, BrCH2CH2Br(EDB), decachloro-biphenyl (DCBP), and
     2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) in DMSO (DMSO) results in the
     emission of chemiluminescence (CL). The chemiluminescence reactions are
     characterized as having biphasic second order kinetics, CL wavelengths
     between 350 nm and 650 nm, and exhibiting perturbation by chems. reactive
     with singlet oxygen. These data suggest that singlet oxygen species are
     the excited state responsible for the light emissions. Polarog. studies
     confirm ·O-2 consumption and halide release in the reactions, while
     gas liquid chromatog. and NBT reduction demonstrate the decomposition of the
     halocarbons into products. A chemiluminescent reaction mechanism is
     proposed involving reductive dehalogenation of the halocarbons and the
     generation of singlet oxygen. The significance of singlet oxygen
     generation is discussed with respect to a general mechanism for explaining
     the rapid initiation of lipid peroxidative membrane damage in halocarbon
     toxigenicity in animal and plant tissues.
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Searched by Noble Jarrell 272-2556

ST chemiluminescence superoxide halocarbon aprotic soln
IT Luminescence, chemi-
(during reactions between superoxide and selected aliphatic and aromatic halocarbons in aprotic media)
IT Kinetics, reaction
(of chemiluminescence reactions between superoxide and selected aliphatic and aromatic halocarbons in aprotic media)
IT 11062-77-4, Superoxide
RL: RCT (Reactant); RACT (Reactant or reagent)
(chemiluminescence reactions between aliphatic and aromatic halocarbons and)
IT 56-23-5, Tetrachloromethane, reactions 67-66-3, Chloroform, reactions 106-93-4, 1,2-Dibromoethane 1746-01-6, 2,3,7,8-Tetrachlorodibenzo-p-dioxin 2051-24-3, Decachlorobiphenyl
RL: RCT (Reactant); RACT (Reactant or reagent)
(chemiluminescence reactions between superoxide and)

L1 ANSWER 2 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1992:607093 HCAPLUS
DN 117:207093
ED Entered STN: 28 Nov 1992
TI Stability of sethoxydim and its degradation products in solution, in soil, and on surfaces
AU **Shoaf, Antony R.**; Carlson, William C.
CS Bowman Gray Sch. Med., Wake For. Univ., Winston-Salem, NC, 27103, USA
SO Weed Science (1992), 40(3), 384-9
CODEN: WEESA6; ISSN: 0043-1745
DT Journal
LA English
CC 5-3 (Agrochemical Bioregulators)
Section cross-reference(s): 19
AB Sethoxydim reacts spontaneously with water resulting in immediate structural changes. Simulation of field conditions of light, moisture, oxygen, pH, and soil and evaporation on siliceous surfaces duplicated this lability. Sethoxydim degradation was enhanced by alkaline conditions, UV and incandescent light, and adsorption on solid surfaces. No sethoxydim was detected immediately after application to moist soil. Less than 2% extractable sethoxydim was present in dry soil after 24 h.
ST sethoxydim degrdn soln soil factor
IT Soil moisture
(sethoxydim degradation in relation to)
IT Soils
(sethoxydim degradation in, factors affecting)
IT Light
Ultraviolet radiation
(sethoxydim stability response to)
IT 74051-80-2, Sethoxydim
RL: PRP (Properties)
(degradation of, in solution and in soils, factors affecting)
IT 104939-16-4, Sethoxydim sulfone
RL: BIOL (Biological study)
(sethoxydim degradation product)
IT 7732-18-5
RL: BIOL (Biological study)
(soil moisture, sethoxydim degradation in relation to)

L1 ANSWER 3 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1991:625526 HCAPLUS
DN 115:225526
ED Entered STN: 29 Nov 1991
TI Extraction and analysis of superoxide free radicals (·O2.hivin.)

Searched by Noble Jarrell 272-2556

from whole mammalian liver
AU **Shoaf, Antony R.**; Shaikh, Ali U.; Harbison, Raymond D.; Hinojosa, Oscar
CS Bowman Gray Sch. Med., Wake Forest Univ., Winston-Salem, NC, 27103, USA
SO Journal of Bioluminescence and Chemiluminescence (1991), 6(2), 87-96
CODEN: JBCHE7; ISSN: 0884-3996
DT Journal
LA English
CC 4-1 (Toxicology)
AB Extraction of whole lobes of normal rat liver with DMSO under N gives exts. that contain 5-10 μmol/L·O2- (50-100 nmol·O2- per 10 mL extract per 4 g liver; 1.25-2.50 nmol ·O2-/mL/g liver). Evidence of ·O2- in the exts. is given by: (1) ESR signals, (2) differential pulsed polarog., (3) chemiluminescence, and (4) Nitro Blue tetrazolium reduction All tests yield results identical with those obtained with authentic ·O2-. Extraction of ·O2- is enhanced by tetrabutylammonium ion and is maximal at 1-3 min. These results raise the possibility that substantial amts. of ·O2- are normally sequestered in protective membranous sites in vivo.
ST liver superoxide radical extn detn; ESR superoxide free radical detn; polarog superoxide free radical detn; chemiluminescence superoxide free radical detn; NBT redn superoxide free radical detn
IT Rat
(superoxide free radical of liver of, extraction and determination of)
IT Liver, composition
(superoxide free radical of, extraction and determination of, of rat)
IT 11062-77-4, Superoxide
RL: BIOL (Biological study)
(extraction and determination of, of rat liver)
IT 67-68-5, DMSO, uses and miscellaneous 1923-70-2, Tetrabutylammonium perchlorate
RL: USES (Uses)
(in extraction of superoxide free radical from rat liver)

L1 ANSWER 4 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1987:80199 HCAPLUS
Correction of: 1986:585726
DN 106:80199
Correction of: 105:185726
ED Entered STN: 21 Mar 1987
TI Analytical techniques to measure sethoxydim and breakdown products
AU **Shoaf, Antony R.**; Carlson, William C.
CS Dep. Pharmacol. Interdiscip. Toxicol., Univ. Arkansas Med. Sci., Little Rock, AR, 71902, USA
SO Weed Science (1986), 34(5), 745-51
CODEN: WEESA6; ISSN: 0043-1745
DT Journal
LA English
CC 5-1 (Agrochemical Bioregulators)
Section cross-reference(s): 80
AB A method was developed for the quant. determination of trace levels of sethoxydim
(I) [74051-80-2] and its metabolites in an aqueous solution using reversed-phase
HPLC. Optimum extraction of I was with dichloromethane and was only 15% efficient at pH 3. The limit of detection by HPLC for I was 5 ng on column and <5 ppb in soil. At least 5 different compds. were detected in the com. formulation, in EPA reference stds., and in com. I stds. I undergoes a rapid decomposition in the presence of water to form more polar products, which accounts for the low extraction efficiency. Decomposition was greatest under

alkaline conditions. Acid pH and soil inhibited decomposition and gave greater recoveries of parent compound At least one breakdown product cochromatographed with a known sulfone derivative The procedures are directly applicable to soils, environmental waters, and plant and animal tissues.
ST sethoxydim detn HPLC; liq chromatog sethoxydim detn
IT Plant analysis
Soil analysis
(sethoxydim determination in, by HPLC)
IT 74051-80-2, Sethoxydim
RL: ANT (Analyte); ANST (Analytical study)
(determination of, by HPLC)
IT 106613-06-3
RL: FORM (Formation, nonpreparative)
(formation of, from sethoxydim in water)
IT 12408-02-5, Hydrogen ion, biological studies
RL: BIOL (Biological study)
(sethoxydim degradation response to)
IT 7732-18-5, Water, analysis
RL: AMX (Analytical matrix); ANST (Analytical study)
(sethoxydim determination in, by HPLC)

L1 ANSWER 5 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1986:620455 HCAPLUS
DN 105:220455
ED Entered STN: 26 Dec 1986
TI Heavy metal inhibition of carnitine acetyltransferase activity in human placental syncytiotrophoblast: possible site of action of mercuric chloride, methylmercuric chloride, and cadmium chloride
AU **Shoaf, Antony R.**; Jarmer, Scott; Harbison, Raymond D.
CS Div. Interdisc. Toxicol., Univ. Arkansas Med. Sci., Little Rock, AR, 72205, USA
SO Teratogenesis, Carcinogenesis, and Mutagenesis (1986), 6(5), 351-60
CODEN: TCMUD8; ISSN: 0270-3211
DT Journal
LA English
CC 4-3 (Toxicology)
AB The effect of $HgCl_2$, MeHgCl [115-09-3], and $CdCl_2$ on the acetylating activity of membranous carnitine acetyltransferase (CarAc) [9029-90-7] in membrane vesicles from the maternal surface of human placental syncytiotrophoblast was investigated. CarAc was inhibited by inorg. and organic Hg and Cd. Carnitine acetylation was inhibited by as little as 5 μM Hg, with complete inhibition at 50 μM inorg. and organic Hg. Inhibition by Cd was incomplete (<60%) at 500 μM $CdCl_2$. Kinetic studies using Hanes plots revealed a mixed type of inhibition of CarAc by the metals. Cysteine [52-90-4] preincubation decreased the amount of inhibition of CarAc by the metals. These results indicate that the inhibition of CarAc by heavy metals occurs by binding of the sulfhydryl on the enzyme by the metals. This interaction may be a mechanism of the heavy metal-induced fetotoxicity.
ST carnitine acetyltransferase metal placenta syncytiotrophoblast
IT Mercapto group
(carnitine acetyltransferase of syncytiotrophoblast of humans inhibition by heavy metals in relation to)
IT Embryo
(fetus, heavy metal toxicity to, carnitine acetyltransferase of syncytiotrophoblast inhibition in relation to)
IT Trace elements
RL: BIOL (Biological study)
(metals, heavy, carnitine acetyltransferase of syncytiotrophoblast of humans inhibition by, fetal toxicity in relation to)

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IT Trophoblast
(syncytio-, carnitine acetyltransferase of, of humans, heavy metals inhibition of, fetal toxicity in relation to)
IT 52-90-4, biological studies
RL: BIOL (Biological study)
(carnitine acetyltransferase of syncytiotrophoblast of humans inhibition by heavy metals prevention by)
IT 115-09-3 7439-97-6, biological studies 7440-43-9, biological studies
RL: BIOL (Biological study)
(carnitine acetyltransferase of syncytiotrophoblast of humans inhibition by, fetal toxicity in relation to)
IT 9029-90-7
RL: BIOL (Biological study)
(of syncytiotrophoblast of humans, heavy metals inhibition of, fetal toxicity in relation to)

L1 ANSWER 6 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1986:585726 HCAPLUS
DN 105:185726
ED Entered STN: 28 Nov 1986
TI Analytical techniques to measure sethoxydim and breakdown products
AU **Shoaf, Antony R.**; Carlson, William C.
CS Dep. Pharmacol., Univ. Arkansas Med. Sci., Little Rock, AR, 72205, USA
SO Weed Research (1986), 34(5), 745-51
CODEN: WEREAT; ISSN: 0043-1737
DT Journal
LA English
CC 5-1 (Agrochemical Bioregulators)
Section cross-reference(s): 19, 80
AB A method was developed for the quant. determination of trace levels of the widely used herbicide sethoxydim (I) [74051-80-2] and its metabolites in an aqueous solution using reversed-phase high-performance liquid chromatog. (HPLC). Optimum extraction of I was with dichloromethane [75-09-2] and was only 15% efficient at pH 3. The limit of detection by HPLC for I was 5 ng on column and <5 ppb in soil. At least 5 different compds. were detected in the com. formulation, in EPA reference stds., and in com. I stds. I undergoes a rapid decomposition in the presence of water to form more polar products, which accounts for the low extraction efficiency. Decomposition was greatest under alkaline conditions. Acid pH and soil inhibited decomposition and gave greater recoveries of parent compound . At least 1 breakdown product cochromatographed with a known sulfone derivative [104939-16-4]. The procedures are directly applicable to soils, environmental waters, and plant and animal tissues.
ST sethoxydim detn HPLC; chromatog sethoxydim; soil sethoxydim detn HPLC
IT Soil pollution
(by sethoxydim, determination of degradation products and, by HPLC)
IT Soil analysis
(for sethoxydim and degradation products, by HPLC)
IT Extraction
(of sethoxydim, from soil, by organic solvents, for HPLC, pH effect on)
IT Hydrolysis
(of sethoxydim, in soil and aqueous exts., pH effect on, determination by HPLC in relation to)
IT Soil acidity
(sethoxydim degradation inhibition by, determination by HPLC in relation to)
IT 74051-80-2
RL: ANT (Analyte); ANST (Analytical study)

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(determination of, in soil, by reversed-phase high-performance chromatog.)
IT 12408-02-5, biological studies
RL: BIOL (Biological study)
(sethoxydim degradation inhibition by, determination by HPLC in relation to)
IT 104939-16-4
RL: BIOL (Biological study)
(sethoxydim degradation product in soil, determination of, by HPLC)
IT 14280-30-9, biological studies
RL: BIOL (Biological study)
(sethoxydim degradation stimulation by, determination by HPLC in relation to)
IT 75-09-2, biological studies
RL: BIOL (Biological study)
(sethoxydim from soil extraction by, for HPLC determination)

L1 ANSWER 7 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1986:32196 HCAPLUS
DN 104:32196
ED Entered STN: 08 Feb 1986
TI Comparative enzymic acetylation of carnitine and choline by human placenta syncytiotrophoblast membrane vesicles
AU Jarmer, Scott; **Shoaf, Antony R.**; Harbison, Raymond D.
CS Dep. Pharmacol. Interdiscipl. Toxicol., Univ. Arkansas Med. Sci., Little Rock, AR, 72205, USA
SO Teratogenesis, Carcinogenesis, and Mutagenesis (1985), 5(6), 445-61
CODEN: TCMUD8; ISSN: 0270-3211
DT Journal
LA English
CC 13-1 (Mammalian Biochemistry)
Section cross-reference(s): 7
AB Microvillus membrane vesicle prepns. from the maternal surface of human placental syncytiotrophoblasts were examined for the presence of carnitine and choline acetyltransferase activity. Carnitine was the primary substrate for the vesicle acetyltransferase enzyme(s), whereas choline appeared to be a minor substrate. For acetylcarnitine synthesis, the Km was 0.749 mM carnitine and Vmax was 641 pmol/mg protein/min, resp.; for acetylcholine synthesis, the Km was 0.5 mM choline and Vmax was 53 pmol/mg protein/min, resp. Approx. 10-fold more acetylated product was formed with carnitine than with choline. The carnitine-mediated reaction obeyed Michaelis-Menten kinetics, whereas the choline reaction exhibited anomalous behavior. Vesicle prepns. were stable for 21 days at -80°. Preliminary studies on hypotonically lysed vesicles demonstrated that the acetyltransferase is particulate and is bound to the membrane of the vesicle. Thus, carnitine acetyltransferase activity is in the plasmalemma membrane of the syncytiotrophoblast and may play a role, analogous to the mitochondrial fatty acid shuttle system, in the maternofetal translocation of fatty acyl residues.
ST placenta carnitine choline acetyltransferase; syncytiotrophoblast carnitine choline acetyltransferase
IT Michaelis constant
(of carnitine and choline acetyltransferases)
IT Organelle
(microvillus, carnitine and choline acetyltransferases of membrane vesicles of, of human syncytiotrophoblasts)
IT Trophoblast
(syncytio-, carnitine and choline acetyltransferases of microvillus membrane vesicles of, of human)
IT 9012-78-6 9029-90-7
RL: BIOL (Biological study)
(of syncytiotrophoblast microvillus membrane vesicles, of human)

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IT 541-15-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with carnitine acetyltransferase of human syncytiotrophoblasts, kinetics of)
IT 62-49-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with choline acetyltransferase of human syncytiotrophoblasts, kinetics of)

L1 ANSWER 8 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1976:101003 HCAPLUS
DN 84:101003
ED Entered STN: 12 May 1984
TI Studies on the mechanism and possible functionality of electronic excitation state generation in liver microsomes
AU **Shoaf, Antony R.**
CS Tulane Univ., New Orleans, LA, USA
SO (1975) 240 pp. Avail.: Xerox Univ. Microfilms, Ann Arbor, Mich., Order No. 75-23,296
From: Diss. Abstr. Int. B 1976, 36(7), 3191-2
DT Dissertation
LA English
CC 6-1 (General Biochemistry)
AB Unavailable
ST microsome electron transport system; metab drug lipid microsome
IT Microsome
(drug and lipid metabolism by, mechanism and functionality of electronic excitation state generation in)
IT Electron transport system, biological
(in drug and lipid metabolism by microsomes)
IT Pharmaceuticals
(metabolism of, by microsomes, mechanism and functionality of electronic excitation state generation in)
IT Lipids
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(metabolism of, by microsomes, mechanism and functionality of electronic excitation state generation in)

L1 ANSWER 9 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1975:107690 HCAPLUS
DN 82:107690
ED Entered STN: 12 May 1984
TI Microsomal (μS) lipid peroxidation, drug oxidations, and chemiluminescence (CL). Mechanisms
AU **Shoaf, Antony R.**; Steele, Richard H.
CS Sch. Med., Tulane Univ., New Orleans, LA, USA
SO Biochemical and Biophysical Research Communications (1974), 61(4), 1363-71
CODEN: BBRCA9; ISSN: 0006-291X
DT Journal
LA English
CC 6-1 (General Biochemistry)
AB Substrate oxidation and chemiluminescence were elicited by CN- addns. to both microsomes and a lipid peroxide extracted from peroxidized microsomes with CHCl3-MeOH. Numerous properties were common to both prepns., KCN addition destroyed active O in both preparation, elicited a chemiluminescence which was not evoked by a 2nd CN- addition, caused the reduction of methylene blue and Nitro Blue Tetrazolium, hydroxylated acetanilide, and caused gas evolution. Probably, 1-hydroxyalkyl peroxides are responsible for these phenomena. A freshly mixed solution of HCOOH and HCHO [producing

bis-(hydroxymethyl)peroxide] effected an immediate reduction of methylene blue and a sustained chemiluminescence on KCN addition The monohydroxymethyl peroxide apparently reacts with CN- to yield reducing equivs., gas, and light. A mechanism for microsomal chemiluminescence is discussed in which these processes are simultaneously mediated by 1-hydroxyalkyl hydroperoxides formed by microsome membrane lipids as they are peroxidized.

ST microsome luminescence hydroxyalkyl peroxide; cyanide microsome luminescence redn oxidn

IT Luminescence
(bio-, by microsome, hydroxyalkyl peroxides in relation to)

IT Peroxides, biological studies
RL: BIOL (Biological study)
(hydroxyalkyl, microsome bioluminescence in relation to)

IT Microsome
(luminescence by, hydroxyalkyl peroxides in relation to)

IT Hydroxylation
(microsomal, hydroxyalkyl peroxides in, model of)

IT 103-84-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydroxylation of, by microsome and peroxides, luminescence in relation to)

IT 17088-73-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(luminescence and substrate oxidation by)

IT 57-12-5
RL: BIOL (Biological study)
(luminescence response to, by microsome and hydroxyalkyl peroxides)

IT 61-73-4 298-83-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(reduction of, by microsome and peroxides, luminescence in relation to)

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=> d ide l26

L26  ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   7440-70-2  REGISTRY
CN   Calcium (8CI, 9CI)   (CA INDEX NAME)
OTHER NAMES:
CN   32: PN: WO2004005346 PAGE: 5 claimed sequence
CN   Atomic calcium
CN   Blood-coagulation factor IV
CN   Calcium atom
CN   Calcium element
CN   Praval
DR   8047-59-4
MF   Ca
CI   COM
LC   STN Files:   ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS,
       BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN,
       CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM*,
       DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT,
       ENCOMPPAT2, HSDB*, IFICDB, IFIPAT, IFIUDB, IMSCOSEARCH, IPA, MEDLINE,
       MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PIRA, PROMT, RTECS*, TOXCENTER,
       TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB
         (*File contains numerically searchable property data)
     Other Sources:   DSL**, EINECS**, TSCA**
         (**Enter CHEMLIST File for up-to-date regulatory information)
DT.CA  CAplus document type:  Book; Conference; Dissertation; Journal; Patent;
       Preprint; Report
RL.P   Roles from patents:  ANST (Analytical study); BIOL (Biological study);
       CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC
       (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process);
       PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role
       in record)
RLD.P  Roles for non-specific derivatives from patents:  ANST (Analytical
       study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC
       (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process);
       PRP (Properties); RACT (Reactant or reagent); USES (Uses)
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Searched by Noble Jarrell 272-2556

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

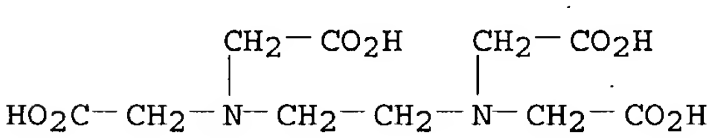
Ca

340270 REFERENCES IN FILE CA (1907 TO DATE)
7050 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
340715 REFERENCES IN FILE CAPLUS (1907 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> d ide l41

L41 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 60-00-4 REGISTRY
CN Glycine, N,N'-1,2-ethanediylbis[N-(carboxymethyl)- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Acetic acid, (ethylenedinitrilo)tetra- (8CI)
OTHER NAMES:
CN 3,6-Diazaoctanedioic acid, 3,6-bis(carboxymethyl)-
CN Acetic acid, 2,2',2'',2'''-(1,2-ethanediyldinitrilo)tetrakis-
CN Acroma DH 700
CN Celon A
CN Celon ATH
CN Cheelox
CN Chelest 3A
CN Chemcolox 340
CN Clewat TAA
CN Complexon II
CN Dissolvine E
CN Edathamil
CN Edetic acid
CN **EDTA**
CN EDTA (chelating agent)
CN Endrate
CN Ethylenediamine-N,N,N',N'-tetraacetic acid
CN Ethylenediaminetetraacetic acid
CN Ethylenedinitrilotetraacetic acid
CN Gluma Cleanser
CN Havidote
CN ICRF 185
CN Metaquest A
CN N,N'-1,2-Ethanediyl-bis-N-(carboxymethyl)glycine
CN Nervanaid B acid
CN NSC 97243
CN NSC 97404
CN Nullapon B acid
CN Nullapon BF acid
CN Perma Kleer 50 acid
CN Quastal Special
CN Sequestrene AA

CN Sequestric acid
CN Sequestrol
CN Techrun DO
CN Titriplex
CN Titriplex II
CN Trilon BS
CN Trilon BW
CN Versene
CN YD 30
CN Zonon AO
FS 3D CONCORD
DR 13440-78-3, 20539-27-9, 94108-75-5, 26627-46-3, 30485-87-1, 30485-88-2, 30485-90-6, 32757-10-1, 161122-33-4, 402925-67-1, 675141-16-9
MF C10 H16 N2 O8
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, PROUSDDR, PS, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**, WHO
(**Enter CHEMLIST File for up-to-date regulatory information)
DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

25574 REFERENCES IN FILE CA (1907 TO DATE)
2963 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
25610 REFERENCES IN FILE CAPLUS (1907 TO DATE)
18 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

Searched by Noble Jarrell 272-2556

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=> d ide l42

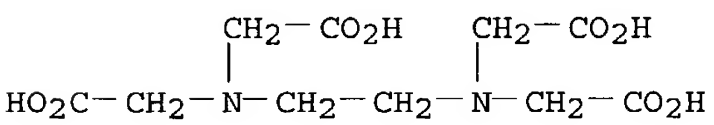
L42  ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   50934-79-7  REGISTRY *
* Use of this CAS Registry Number alone as a search term in other STN files may
  result in incomplete search results.  For additional information, enter HELP
  RN* at an online arrow prompt (=>).
CN   Aequorins  (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN   Aequorin
MF   Unspecified
CI   MAN, CTS
LC   STN Files:   AGRICOLA, ANABSTR, BIOTECHNO, CANCERLIT, CBNB, CHEMCATS,
       CSCHEM, DDFU, DRUGU, EMBASE, MEDLINE, TOXCENTER

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***


=> d ide l44

L45  ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   60-00-4  REGISTRY
CN   Glycine, N,N'-1,2-ethanediylbis[N-(carboxymethyl)- (9CI)  (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN   Acetic acid, (ethylenedinitrilo)tetra- (8CI)
OTHER NAMES:
CN   3,6-Diazaoctanedioic acid, 3,6-bis(carboxymethyl)-
CN   Acetic acid, 2,2',2'',2'''-(1,2-ethanediyldinitrilo)tetrakis-
CN   Acroma DH 700
CN   Celon A
CN   Celon ATH
CN   Cheelox
CN   Chelest 3A
CN   Chemcolox 340
CN   Clewat TAA
CN   Complexon II
CN   Dissolvine E
CN   Edathamil
CN   Edetic acid
CN   EDTA
CN   EDTA (chelating agent)
CN   Endrate
CN   Ethylenediamine-N,N,N',N'-tetraacetic acid
CN   Ethylenediaminetetraacetic acid
CN   Ethylenedinitrilotetraacetic acid
CN   Gluma Cleanser
CN   Havidote
CN   ICRF 185
CN   Metaquest A
CN   N,N'-1,2-Ethanediyl-bis-N-(carboxymethyl)glycine
CN   Nervanaid B acid
CN   NSC 97243
CN   NSC 97404
CN   Nullapon B acid
CN   Nullapon BF acid
CN   Perma Kleer 50 acid
CN   Quastal Special
CN   Sequestrene AA
CN   Sequestric acid
CN   Sequestrol
```

CN Techrun DO
CN Titriplex
CN Titriplex II
CN Trilon BS
CN Trilon BW
CN Versene
CN YD 30
CN Zonon AO
FS 3D CONCORD
DR 13440-78-3, 20539-27-9, 94108-75-5, 26627-46-3, 30485-87-1, 30485-88-2, 30485-90-6, 32757-10-1, 161122-33-4, 402925-67-1, 675141-16-9
MF C10 H16 N2 O8
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, PROUSDDR, PS, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**, WHO
(**Enter CHEMLIST File for up-to-date regulatory information)
DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

25574 REFERENCES IN FILE CA (1907 TO DATE)
2963 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
25610 REFERENCES IN FILE CAPLUS (1907 TO DATE)
18 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

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Searched by Noble Jarrell 272-2556

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     (FILE 'HOME' ENTERED AT 09:09:20 ON 10 JUN 2004)

     FILE 'HCAPLUS' ENTERED AT 09:10:37 ON 10 JUN 2004
                E SHOAF A/AU
L1             9 E4

     FILE 'REGISTRY' ENTERED AT 10:32:18 ON 10 JUN 2004
L2         78922 CALCIUM
L3           148 L2 AND ELC.SUB=1
L4           113 CA/MF
L5           148 L3 OR L4

     FILE 'HCAPLUS' ENTERED AT 10:38:04 ON 10 JUN 2004
L6         365017 L5
L7           3545 CHELATION/CT
L8          13718 CHELATING AGENTS+OLD,NT/CT
L9          37651 CHELATES+NT/CT
L10          5676 SPORE +OLD,NT/CT
L11           231 L10 (L) ?ENDO?/BI
L12         51104 "BACILLUS (BACTERIUM GENUS)"+OLD,NT/CT
L13         16072 CLOSTRIDIUM+NT/CT
L14        219890 LUMINESCENCE+OLD,NT/CT
L15         12111 (CALCIUM? OR CA) AND (L7-9 OR ?CHELAT?/BI)
L16            85 L15 AND L10-13
L17             1 L16 AND (L14 OR ?LUMINESC?/BI)
L18             0 L17 AND L1
L19          9336 L5 AND (L7-9 OR ?CHELAT?/BI)
L20            51 L19 AND L10-13
L21             0 L20 AND (L14 OR ?LUMINESC?/BI)
L22          3039 (L5 OR CALCIUM? OR CA) (L) (L7-9 OR ?CHELAT?/BI)
L23            15 L22 AND (L10-13)
L24             0 L23 AND L1
L25            14 L23 AND (PY<=2001 OR PRY<=2001 OR AY<=2001 OR PD<20011119 OR PR

     FILE 'REGISTRY' ENTERED AT 11:16:06 ON 10 JUN 2004
L26             1 7440-70-2

     FILE 'HCAPLUS' ENTERED AT 11:33:24 ON 10 JUN 2004
L27             6 L25 AND (1978:420209 OR 1969:459163 OR 1985:109380 OR 1963:4849
L28             3 E13-18 AND L27
L29             2 L23 AND ENDOSPOR?
L30             0 L29 AND L1
L31             2 L29 AND (PY<=2001 OR PRY<=2001 OR AY<=2001 OR PD<20011119 OR PR
L32             3 L28 OR L31
L33            35 (L14 OR ?LUMINESC?/BI) AND L22
L34            31 L33 AND (PY<=2001 OR PRY<=2001 OR AY<=2001 OR PD<20011119 OR PR
L35             3 L34 AND (METAL-ALQ3 COMPLEXES OR CATION CHELAT?)/TI
L36            28 L34 NOT L35
L37            10 L34 AND (CALCIUM INDICATORS OR DISPLACEMENT OR PHOTOPHYSICAL OR
L38            21 L34 NOT L37
L39             4 L38 AND (BENZIDINES OR TETRACYCLINES OR CALCEIN BLUE OR AEQUORI
L40            14 L37 OR L39

     FILE 'REGISTRY' ENTERED AT 12:33:29 ON 10 JUN 2004
L41             1 EDTA/CN
L42             1 AEQUORIN/CN

     FILE 'HCAPLUS' ENTERED AT 12:48:22 ON 10 JUN 2004
L43         27755 AEQUORIN? OR EDTA OR ENDRATE? OR (ETHYLENEDIAMINE OR ETHYLENEDI
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Searched by Noble Jarrell 272-2556

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     FILE 'REGISTRY' ENTERED AT 12:53:41 ON 10 JUN 2004
L44             1 60-00-4

     FILE 'HCAPLUS' ENTERED AT 12:54:06 ON 10 JUN 2004
L45          2599 (L5 OR CALCIUM? OR CA) (L) (L41 OR L42 OR L43 OR L44)
L46             6 L45 AND (L10 OR L11 OR L12 OR L13 OR ENDOSPOR?)
L47             0 L46 AND L1
L48             0 L47 AND (PY<=2001 OR PRY<=2001 OR AY<=2001 OR PD<20011119 OR PR
L49           218 L45 AND (L14 OR ?LUMINESC?/BI)
L50           134 L45 (L) (L14 OR ?LUMINESC?/BI)
L51             0 L50 AND L1
L52           126 L50 AND (PY<=2001 OR PRY<=2001 OR AY<=2001 OR PD<20011119 OR PR
L53           609 AEQUORINS+OLD/CT
L54           238 (L5 OR CALCIUM? OR CA) (L) L53
L55             0 L54 AND (L10 OR L11 OR L12 OR L13 OR ENDOSPOR?)
L56            21 L45 AND LUMINESCENCE SPECTROSCOPY+OLD,NT/CT
L57            11 L54 AND LUMINESCENCE SPECTROSCOPY+OLD,NT/CT
L58            21 L56-57
L59             0 L58 AND L1
L60            18 L58 AND (PY<=2001 OR PRY<=2001 OR AY<=2001 OR PD<20011119 OR PR
L61             4 L60 AND (CHEMILUMINESCENT BINDING ASSAY OR AEQUORIN LUMINESCENC

     FILE 'WPIX' ENTERED AT 13:42:44 ON 10 JUN 2004
                 E EDTA/DRN
                 E E3+ALL
L62          6586 0195/DRN OR R00195/DCN
L63         10909 (AEQUORIN? OR EDTA OR ENDRATE? OR (ETHYLENEDIAMINE OR ETHYLENED
                 E CALCIUM/DRN
                 E CALCIUM/DCN
                 E E3+ALL
                 E E2+ALL
L64          1265 R03033/DCN OR 3033/DRN
L65         23532 A08-A07/MC OR ?CHELAT?/BIX
L66          4223 ((CALCIUM? OR CA)/BIX OR L64) AND (L65 OR L63 OR L62)
L67         11540 (G04-A OR B11-C07B3 OR C11-C07B3 OR B11-C07B4 OR C11-C07B4)/MC
L68          7809 (B04-B02B1 OR C04-B02B1 OR B04-F10B1 OR C04-F10B1 OR B04-F10B O
L69             1 L66 AND L67 AND L68
                 E SHOAF A/AU
L70          2029 CLOSTRID?/BIX
L71             0 L70 AND L66 AND L67

=> b hcap
FILE 'HCAPLUS' ENTERED AT 14:03:06 ON 10 JUN 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
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FILE COVERS 1907 - 10 Jun 2004 VOL 140 ISS 24
FILE LAST UPDATED: 9 Jun 2004 (20040609/ED)

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This file contains CAS Registry Numbers for easy and accurate substance identification.

'OBI' IS DEFAULT SEARCH FIELD FOR 'HCAPLUS' FILE

=> d all hitstr l28 tot

L28 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2004 ACS on STN
AN **1985:109380** HCAPLUS
DN 102:109380
ED Entered STN: 06 Apr 1985
TI Screening microorganisms for the production of amylolytic enzymes
IN Horwath, Robert O.
PA Nabisco Brands, Inc., USA
SO U.S., 4 pp.
CODEN: USXXAM
DT Patent
LA English
IC ICM C12Q001-40
ICS C12Q001-04
NCL 435022000
CC 9-2 (Biochemical Methods)
Section cross-reference(s): 7
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4490466	A	19841225	US 1983-480430	19830330 <--
PRAI	US 1983-480430		19830330 <--		

AB Microorganisms capable of amylolytic enzyme synthesis and growing on the surface of a solid medium are detected by identifying a zone of hydrolyzed starch surrounding each microorganism. The process is particularly useful for the detection of α-amylase activity in strains of Bacillus licheniformis as it employs a selection step under anaerobic conditions prior to the detection of the enzyme.
ST microorganism screening amylolytic enzyme; Bacillus amylase detection
IT **Bacillus licheniformis**
Bacillus stearothermophilus
(amylase detection in)
IT Microorganism
(amylolytic enzyme-containing, screening of)
IT Enzymes
RL: ANT (Analyte); ANST (Analytical study)
(detection of, in microorganisms)
IT 60-00-4, biological studies
RL: BIOL (Biological study)
(as **calcium chelator**, in amylase detection in microorganisms)
IT 9000-90-2
RL: ANT (Analyte); ANST (Analytical study)
(detection of, in microorganisms)
IT 9005-25-8, biological studies
RL: BIOL (Biological study)
(medium containing, for screening of microorganisms for amylolytic enzymes)
IT 7553-56-2, uses and miscellaneous
RL: USES (Uses)
(starch-indicating reagent containing, in microorganism screening for amylolytic enzymes)

L28 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2004 ACS on STN

AN **1978:543095** HCAPLUS
DN 89:143095
ED Entered STN: 12 May 1984
TI Role of **chelation** and water binding of **calcium** in dormancy and heat resistance of bacterial endospores
AU Rajan, K. S.; Jaw, R.; Grecz, N.
CS Res. Inst., Illinois Inst. Technol., Chicago, IL, USA
SO Bioinorganic Chemistry (**1978**), 8(6), 477-91
CODEN: BICHBX; ISSN: 0006-3061
DT Journal
LA English
CC 10-3 (Microbial Biochemistry)
Section cross-reference(s): 6
AB The possible relation between the H2O binding by bacterial endospores and their dormancy and heat resistances was examined in terms of the coordination characteristics of the spore-bound Ca. Stabilities of the Ca complexes of typical cytoplasmic and structural spore components were determined by potentiometric equilibrium pH measurements in model systems consisting of dipicolinic acid (DPA), glycine, alanine, glutamic acid, Ala-Glu, triglycine, and tetraglycine. The Ca2+-form and H+-form spores of Clostridium botulinum 33A were investigated in vivo with respect to their water sorption and heat-resistance characteristics. The complexing of Ca and Ca(II)-DPA may be biol. significant for spore resistance and dormancy at the following 3 levels: (1) complexing with spore cytoplasmic pool constituents consistent with the idea of a metal-chelate crosslinked cytoplasm or spore cement stabilizing the essential biol. macromols., (2) complexing with structural components of the spore as indicated by the interaction with model peptides, and (3) coordination with H2O to produce an apparently dehydrated environment in the spore as evident from the much greater H2O-sorption capacity of the Ca2+-form spores vs. the much smaller H2O sorption of the H+ -form spores. DPA, in the absence of metal ion, showed some interaction with di-, and tri-, and tetrapeptides and a weak, but detectable, interaction with amino acids. Although the exact mode of the DPA-peptide interaction is not clear, it may be involved in the control of spore dormancy and resistance.
ST Clostridium endospore heat resistance dormancy; endospore **calcium** water binding Clostridium; **chelation calcium** endospore Clostridium
IT **Clostridium botulinum**
(endospores of, heat resistance and dormancy of, **calcium** **chelation** and water binding in relation to)
IT **Spore**
(heat resistance and dormancy of bacterial **endo**-, calcium and water binding in relation to)
IT Heat, biological effects
(on bacterial endospore, **calcium chelation** and water binding in relation to)
IT 499-83-2 7732-18-5, biological studies
RL: BIOL (Biological study)
(binding of, by bacterial endospore, heat resistance in relation to)
IT **14127-61-8**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(**chelation** of, by bacterial endospore, heat resistance in relation to)
IT **14127-61-8**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(**chelation** of, by bacterial endospore, heat resistance in relation to)
RN 14127-61-8 HCAPLUS

CN Calcium, ion (Ca2+) (8CI, 9CI) (CA INDEX NAME)

Ca^{2+}

6/14

L28 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2004 ACS on STN
AN **1978:420209** HCAPLUS
DN 89:20209
ED Entered STN: 12 May 1984
TI **Chelation** characteristics of **calcium** in relation to water binding and heat resistance of bacterial endospores
AU Rajan, K. S.; Grecz, N.
CS Dep. Biol., Illinois Inst. Technol. Res. Inst., Chicago, IL, USA
SO Spore Research (**1977**), Volume Date 1976, 2, 527-43
CODEN: SPRRD2; ISSN: 0306-2074
DT Journal
LA English
CC 10-13 (Microbial Biochemistry)
AB Stabilities of Ca complexing with spore components were determined by potentiometric pH titration, in model systems including dipicolinic acid (DPA), glycine, alanine, glutamic acid, alanylglutamic acid, triglycine, and tetraglycine. Ca2+-form and H+-form spores of C. botulinum 33A were compared with respect to their H2O sorption and heat resistance characteristics. At least 3 levels of complexing of Ca and Ca-DPA may be biol. significant for spore resistance and dormancy: (1) complexing with spore cytoplasmic pool constituents, compatible with the idea of a cross-linked mineralized cytoplasm or spore cement stabilizing essential biol. macromols.; (2) complexing with structural components of the spore as suggested by the interaction with model peptides; and (3) complexing with H2O to produce an apparently dehydrated environment, as evident from the much greater H2O sorption capacity of Ca2+-form than H+-form spores. In addition, DPA itself showed a significant interaction with di-, tri-, and tetrapeptides and a weak but detectable interaction with amino acids.
ST **calcium chelation** Clostridium spore component
IT Ionization in liquids
(equilibrium consts. for, of amino acids and peptides, calcium complexing and Clostridium spore heat resistance in relation to)
IT **Spore**
(heat resistance of, of Clostridium botulinum, calcium and dipicolinate and peptide complexing in relation to)
IT **Chelation**
(of **calcium**, by amino acids and peptides, equilibrium consts. for)
IT **Clostridium botulinum**
(spore heat resistance of, **calcium chelation** effect on, amino acid and peptide complexing in relation to)
IT **7440-70-2**, biological studies
RL: RCT (Reactant); RACT (Reactant or reagent)
(**chelation** of, by amino acids and peptides, Clostridium spore stability in relation to)
IT 56-40-6, biological studies 56-41-7, biological studies 56-86-0, biological studies 499-83-2 556-33-2 637-84-3 13187-90-1
RL: BIOL (Biological study)
(proton association consts. of, calcium and amino acid and peptide complex formation effect on, Clostridium spore stability in relation to)
IT **7440-70-2**, biological studies
RL: RCT (Reactant); RACT (Reactant or reagent)
(**chelation** of, by amino acids and peptides, Clostridium spore stability in relation to)

Searched by Noble Jarrell 272-2556

RN 7440-70-2 HCAPLUS
CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

=> d all hitstr l40 tot

L40 ANSWER 1 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:812242 HCAPLUS
DN 132:290576
ED Entered STN: 26 Dec 1999
TI How **calcium indicators** work
AU Adams, Stephen R.
CS Department of Pharmacology, University of California, San Diego, La Jolla, CA, USA
SO Imaging Neurons (**2000**), 30/1-30/7. Editor(s): Yuste, Rafael; Lanni, Frederick; Konnerth, Arthur. Publisher: Cold Spring Harbor Laboratory Press, Cold Spring Harbor, N. Y.
CODEN: 68MDAV
DT Conference; General Review
LA English
CC 9-0 (Biochemical Methods)
Section cross-reference(s): 6, 79
AB A review, with 14 refs. The present calcium indicators have a modular design consisting of a metal-binding site (or sensor) coupled in some way to a fluorescent dye. Combining different sensors to different dyes results in numerous indicators suited to particular expts. and equipment.
ST review **calcium** indicator **chelator** fluorescence structure
IT Indicators
(calcium; how calcium indicators work)
IT **Chelating agents**
Fluorescence
(how **calcium** indicators work)
IT 7440-70-2, Calcium, analysis
RL: ANT (Analyte); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(how calcium indicators work)
RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Adams, S; J Am Chem Soc 1988, V110, P3212 HCAPLUS
(2) Grynkiewicz, G; J Biol Chem 1985, V260, P3440 HCAPLUS
(3) Haugland, R; Handbook of fluorescent probes and research chemicals, 6th edition 1996
(4) Kao, J; Methods Cell Biol 1994, V40, P155 HCAPLUS
(5) Kuhn, M; Fluorescent chemosensors for ions and molecule recognition 1993, P147 HCAPLUS
(6) Levy, L; Biochemistry 1988, V27, P4041 HCAPLUS
(7) London, R; Am J Physiol 1994, V266, PC1313 HCAPLUS
(8) Minta, A; J Biol Chem 1989, V264, P8171 HCAPLUS
(9) Miyawaki, A; Nature 1997, V388, P882 HCAPLUS
(10) Raju, B; Am J Physiol 1989, V256, PC540 HCAPLUS
(11) Ranganathan, R; Neuron 1994, V13, P837 HCAPLUS
(12) Tsien, R; Biochemistry 1980, V19, P2396 HCAPLUS
(13) Tsien, R; Fluorescent chemosensors for ions and molecule recognition 1993,

P130 HCAPLUS
(14) Tsien, R; To be published in Calcium as cellular regulator 1999

L40 ANSWER 2 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:365182 HCAPLUS
DN 131:162007
ED Entered STN: 14 Jun 1999
TI **Interface formation** between Al and Ca with tris-(8-hydroxyquinoline) aluminum
AU Le, Quoc Toan; Mason, M. Gary; Yan, Li; Choong, V. E.; Forsythe, Eric W.; Tang, Ching W.; Gao, Yongli
CS Dep. Phys. Astron., Univ. of Rochester, Rochester, NY, USA
SO Proceedings of SPIE-The International Society for Optical Engineering (**1999**), 3623(Organic Photonic Materials and Devices), 64-70
CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
CC 66-5 (Surface Chemistry and Colloids)
Section cross-reference(s): 73
AB Using x-ray and UV photoemission spectroscopy (XPS and UPS), we have investigated the early stages of the interface formation between metals, namely Al and Ca, and tris-(8- hydroxyquinoline) aluminum (Alq3). Both interfaces show signs of reaction between the metal and Alq3. However, the detailed behaviors of the two interfaces are very different. In the case of Al/Alq3 interface, the metal was found to react preferentially with the quinolate oxygen as soon as it was deposited onto Alq3. No evidence of reaction with the carbon was found. Unlike with Ca, little interaction between Al and nitrogen of the pyridyl was observed UPS spectra show a quick disappearance of the Alq3 features as early as 0.7 Å of Al deposition, and also suggest the formation of a gap state induced by Al. In the case of Ca/Alq3, the interface is characterized by a staged interface reaction: for low Ca coverages, neg. charged Alq3 radical anions are formed by electron transfer from the Ca. The emergence of new states in the energy gap is observed in the UPS spectra. At higher coverages, the Ca reacts with the phenoxide oxygen resulting in the decomposition of the Alq3 mol.
ST interfacial reaction trishydroxyquinolinealuminum calcium aluminum LED
IT Electronic state
(gap state; interface formation between Al and Ca with tris-(8-hydroxyquinoline) aluminum)
IT **Electroluminescent** devices
Electrooptical materials
Interfacial reaction
Interfacial structure
Solid-solid interface
UV photoelectron spectra
X-ray photoelectron spectra
(interface formation between Al and Ca with tris-(8-hydroxyquinoline) aluminum)
IT **2085-33-8**, Tris-(8-hydroxyquinoline)aluminum 7429-90-5, Aluminum, processes 7440-70-2, Calcium, processes
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); TEM (Technical or engineered material use); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(interface formation between Al and **Ca** with tris-(8-hydroxyquinoline) aluminum)
RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
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(18) Shaheen, S; J Appl Phys 1998, V84, P2324 HCAPLUS
(19) Tang, C; Appl Phys Lett 1987, V51, P913 HCAPLUS
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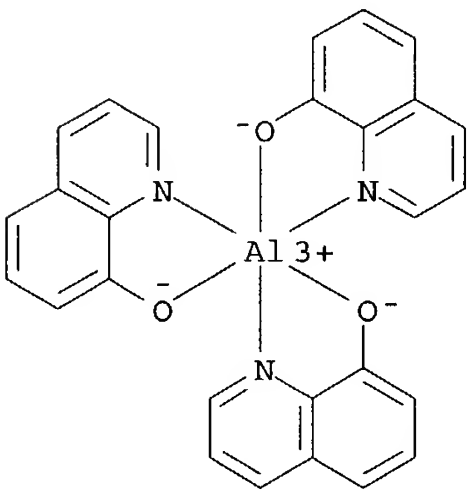
IT **2085-33-8**, Tris-(8-hydroxyquinoline)aluminum
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); TEM (Technical or engineered material use); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(interface formation between Al and **Ca** with tris-(8-hydroxyquinoline) aluminum)

RN 2085-33-8 HCAPLUS
CN Aluminum, tris(8-quinolinolato-κN1,κO8)- (9CI) (CA INDEX NAME)



L40 ANSWER 3 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:9946 HCAPLUS
DN 130:63369
ED Entered STN: 07 Jan 1999
TI **Assay methods** and compositions useful for measuring receptor ligand binding
IN Ballyk, Barbara Ann; Zastawny, Roman; Lee, David K. H.; Demchyshyn, Lidia; Catalano, Concettina
PA Allelix Biopharmaceuticals Inc., Can.
SO PCT Int. Appl., 45 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C12Q

CC 9-16 (Biochemical Methods)
Section cross-reference(s): 2, 6, 13
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9858074	A2	19981223	WO 1998-CA581	19980612 <--
	WO 9858074	A3	19990401		

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG

	AU 9879023	A1	19990104	AU 1998-79023	19980612 <--
	EP 988395	A2	20000329	EP 1998-929167	19980612 <--

R: BE, CH, DE, DK, FR, GB, IT, LI, NL, SE

PRAI	US 1997-874663	19970613	<--
	WO 1998-CA581	19980612	<--

AB This invention provides a system for screening chemical compds. to identify ligands for receptors including G-protein coupled receptors. The invention exploits cells in which the receptor is coupled through a second messenger system to an ion channel that is gated by cyclic nucleotide. Receptor stimulation causes the second messenger system to produce cyclic nucleotide, which results in ion influx through the channel. By measuring ion influx fluorescently, the invention provides a rapid and convenient means for identifying receptor ligands. By providing mixed cell cultures that include cells expressing different receptor types, and by loading into those cells different fluorescent reporters of ion influx, the invention further provides a multiplexed system that accelerates the ligand identification process. Cells useful in the process, and methods for exploiting them, are described.

ST receptor binding ligand assay ion channel transport fluorescence

IT Receptors
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(5-HT6; assay methods and compns. useful for measuring receptor ligand binding)

IT Gene, animal
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(5HT6; assay methods and compns. useful for measuring receptor ligand binding)

IT Dopamine receptors
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(D1; assay methods and compns. useful for measuring receptor ligand binding)

IT G proteins (guanine nucleotide-binding proteins)
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(Gs (adenylate cyclase-stimulating); assay methods and compns. useful for measuring receptor ligand binding)

IT Animal cell line

(Hek 293; assay methods and compns. useful for measuring receptor ligand binding)

IT Proteins, specific or class
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(alpha homomeric rat olfactory cyclic nucleotide gated channel; assay methods and compns. useful for measuring receptor ligand binding)

IT Cell
Fluorescence
Fluorescent indicators
Fluorescent substances
Ions
Mammal (Mammalia)
Molecular association
Nose
Second messenger system
Signal transduction, biological
Transformation, genetic
(assay methods and compns. useful for measuring receptor ligand binding)

IT G protein-coupled receptors
Receptors
RL: ANT (Analyte); ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(assay methods and compns. useful for measuring receptor ligand binding)

IT Ligands
RL: ANT (Analyte); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(assay methods and compns. useful for measuring receptor ligand binding)

IT G proteins (guanine nucleotide-binding proteins)
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(assay methods and compns. useful for measuring receptor ligand binding)

IT Ion channel
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(assay methods and compns. useful for measuring receptor ligand binding)

IT DNA
RL: BPR (Biological process); BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); PROC (Process); USES (Uses)
(assay methods and compns. useful for measuring receptor ligand binding)

IT **Chelating agents**
(**calcium** binding, fluorescent dye; assay methods and compns. useful for measuring receptor ligand binding)

IT Biological transport

Searched by Noble Jarrell 272-2556

(channel-mediated; assay methods and compns. useful for measuring receptor ligand binding)
IT Nucleotides, analysis
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(cyclic; assay methods and compns. useful for measuring receptor ligand binding)
IT Animal cell
(mammalian; assay methods and compns. useful for measuring receptor ligand binding)
IT Nervous system
(olfactory system; assay methods and compns. useful for measuring receptor ligand binding)
IT Organ, animal
(olfactory; assay methods and compns. useful for measuring receptor ligand binding)
IT 218280-33-2, Fura Red AM
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(Fura Red AM; assay methods and compns. useful for measuring receptor ligand binding)
IT 121714-22-5, Fluo 3AM 123632-39-3, Fluo 3 149732-62-7, Fura Red
RL: ARG (Analytical reagent use); ARU (Analytical role, unclassified); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(assay methods and compns. useful for measuring receptor ligand binding)
IT 50-67-9, 5-Hydroxytryptamine, analysis 52-86-8, Haloperidol 60-92-4, CAMP 608-07-1, 5-Methoxytryptamine 2709-56-0, Flupentixol 7665-99-8, CGMP 23583-48-4, 8-Bromo-cAMP 31356-94-2, 8-Bromo-cGMP 66575-29-9, Forskolin 74884-75-6 87134-87-0, Sch 23390 maleate
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(assay methods and compns. useful for measuring receptor ligand binding)
IT 7440-70-2, Calcium, analysis
RL: ARU (Analytical role, unclassified); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(assay methods and compns. useful for measuring receptor ligand binding)

L40 ANSWER 4 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:669195 HCAPLUS
DN 130:18405
ED Entered STN: 23 Oct 1998
TI The Complexation of Tetracycline and **Anhydrotetracycline** with Mg2+ and Ca2+: A Spectroscopic Study
AU Wessels, J. M.; Ford, W. E.; Szymczak, W.; Schneider, S.
CS GSF-Flow Cytometry Group, Neuherberg, 85764, Germany
SO Journal of Physical Chemistry B (**1998**), 102(46), 9323-9331
CODEN: JPCBFK; ISSN: 1089-5647
PB American Chemical Society
DT Journal

LA English
CC 73-4 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 78
AB Steady-state absorption and emission, CD, and time-of-flight secondary-ion-mass-spectroscopic (TOF-SIMS) measurements were performed to study the complexation of tetracycline (TC) and anhydrotetracycline (AHTC) with Mg2+ and Ca2+ ions, resp., in aqueous solns. at pH 8.02. Probably Ca2+ forms a 1:2 ligand:metal complex with TC via chelation through O10-O11 and O12-O1 and induces thereby the extended conformation A of TC, which is stabilized through H bonding between the deprotonated dimethylamino N, N4, and OH12a. PH titrns. provide evidence that N4 deprotonates in the presence of a 164-fold molar excess of Ca2+ at approx. pH 7.7 (cTC = 2.1 + 10-5 M). In contrast to Ca2+, Mg2+ binds to N4-O3 and thereby stabilizes the twisted conformation B of TC. TOF-SIMS measurements indicate that a 1:2 ligand:metal complex is formed in addition to the 1:1 complex. The Mg2+-induced increase in the fluorescence intensity and the observed changes in the absorption spectra provide evidence that the other Mg2+ ion binds to the BCD ring system through the deprotonated O11. In contrast to TC, which adopts the twisted conformation B in aqueous solution at pH 8.02, AHTC exhibits the extended conformation A due to slightly lower deprotonation consts. In the presence of Mg2+, however, the conformational equilibrium is shifted toward the twisted conformation B due to binding of Mg2+ to N4. TOF-SIMS measurements suggest that a 2:2 ligand:metal complex is formed. AHTC remains in conformation A upon addition of Ca2+; complexation through O10 can be excluded from absorption spectroscopic data.
ST complexation tetracycline anhydrotetracycline calcium magnesium spectroscopy; UV tetracycline anhydrotetracycline calcium magnesium complexation; visible tetracycline anhydrotetracycline calcium magnesium complexation; fluorescence tetracycline anhydrotetracycline calcium magnesium complexation; **luminescence** tetracycline anhydrotetracycline calcium magnesium complexation; CD tetracycline anhydrotetracycline calcium magnesium complexation; SIMS tetracycline anhydrotetracycline calcium magnesium complexation; conformation tetracycline anhydrotetracycline calcium magnesium complexation; deprotonation tetracycline anhydrotetracycline calcium magnesium complexation; hydrogen bond tetracycline anhydrotetracycline calcium magnesium; dichroism circular tetracycline anhydrotetracycline calcium magnesium; Cotton effect tetracycline anhydrotetracycline calcium magnesium; bathochromic effect tetracycline anhydrotetracycline calcium magnesium
IT Bathochromic effect
Chelation
Circular dichroism
Complexation
Conformation
Cotton effect
Deprotonation
Fluorescence
Hydrogen bond
Luminescence
TOF-SIMS (time-of-flight secondary-ion mass spectrometry)
UV and visible spectra
Zwitterions
(complexation of tetracycline and anhydrotetracycline with dications of **calcium** and magnesium in spectroscopic study)
IT Titration
(complexometric; complexation of tetracycline and anhydrotetracycline

with dications of calcium and magnesium in spectroscopic study)
IT 60-54-8, Tetracycline 64-75-5, Tetracycline hydrochloride 1665-56-1, Anhydrotetracycline 7487-88-9, Magnesium sulfate, processes 10043-52-4, Calcium dichloride, processes 13803-65-1, Anhydrotetracycline hydrochloride 14127-61-8, Calcium(2+), processes 22537-22-0, Magnesium(2+), processes
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(complexation of tetracycline and anhydrotetracycline with dications of calcium and magnesium in spectroscopic study)
IT 7179-46-6P 28817-80-3P 28817-83-6P 47698-22-6P 57123-00-9P 215609-61-3P 215609-62-4P 215609-63-5P 215609-64-6P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(complexation of tetracycline and anhydrotetracycline with dications of calcium and magnesium in spectroscopic study)
RE.CNT 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD
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L40 ANSWER 5 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:655583 HCAPLUS
DN 130:45135
ED Entered STN: 16 Oct 1998
TI Magnesium and **calcium chelation** by a **bis-spiropyran**
AU Filley, Jonathan; Ibrahim, Mohamed A.; Nimlos, Mark R.; Watt, Andrew S.; Blake, Daniel M.
CS National Renewable Energy Laboratory, Golden, CO, 80401, USA
SO Journal of Photochemistry and Photobiology, A: Chemistry (**1998**), 117(3), 193-198
CODEN: JPPCEJ; ISSN: 1010-6030
PB Elsevier Science S.A.
DT Journal
LA English
CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 78
AB A bis-benzospiropyranindoline was prepared by a simple two-step procedure. The magnesium and calcium chelating ability of this photochromic spiropyran was investigated and compared to simple mono-spiropyrans. Kinetic binding consts. were measured. Moderately strong metal binding occurs in acetone solution (K = 40 000 M-1 for Mg, K = 13 000 M-1 for Ca) when the bis-spiropyran is irradiated with light at 365 nm. This binding is eight times higher than the binding of the mono-spiropyrans studied. The color of the merocyanine form of the bis-spiropyran (λmax = 548 nm) is strongly influenced by the metal, blue-shifting the maximum absorbance 43 nm (Mg) and 22 nm (Ca). Strong fluorescence is observed when the bis-spiropyran complexed to either metal is irradiated at 365 nm, with emission maxima of 586 nm (Mg) and 606 nm (Ca). The strength of the binding is inversely correlated to the unimol. decomposition rate constant of the spiropyran-metal complex. The fluorescence emission maxima become increasingly blue-shifted as the strength of the binding increases. The fluorescence is compared to the metal-free spiropyran, as well as to simple mono-spiropyrans coordinated to calcium. The mechanism of decoloration of the bis-spiropyran with and without metals present is discussed.
ST photochromic spiropyran magnesium **calcium chelation**; fluorescence metal **chelated** photochromic spiropyran
IT Photochromic materials
(**chelate** complexes of bis-benzospiropyranindoline with **calcium** and magnesium ions)
IT **Chelates**
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)
(**chelate** complexes of bis-benzospiropyranindoline with **calcium** and magnesium ions)
IT **Chelation**
(**chelation** of photochromic bis-benzospiropyranindoline with **calcium** and magnesium ions)
IT Wastewater treatment
(**chelation** of photochromic bis-benzospiropyranindoline with **calcium** and magnesium ions in relation to)
IT Complexation kinetics
Complexation kinetics
(**chelation**; **chelation** of photochromic

bis-benzospiropyranindoline with **calcium** and magnesium ions)

IT **Chelation**
Chelation
(kinetics; **chelation** of photochromic bis-benzospiropyranindoline with **calcium** and magnesium ions)

IT **Fluorescence**
Optical absorption
Photochromism
(of **chelate** complexes of bis-benzospiropyranindoline with **calcium** and magnesium ions)

IT 216956-05-7D, **calcium** and magnesium complexes 216956-06-8D, **calcium** and magnesium complexes
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)
(**chelation** of photochromic bis-benzospiropyranindoline with **calcium** and magnesium ions)

IT 216956-05-7P
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(**chelation** of photochromic bis-benzospiropyranindoline with **calcium** and magnesium ions)

IT 216956-06-8P
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(comparison compound; **chelation** of photochromic bis-benzospiropyranindoline with **calcium** and magnesium ions)

IT 97-51-8, 5-Nitrosalicylaldehyde
RL: RCT (Reactant); RACT (Reactant or reagent)
(in synthesis of photochromic bis-benzospiropyranindoline)

IT 1640-39-7, 2,3,3-Trimethylindolenine
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with bischloroacetamidopropane in synthesis of photochromic bis-benzospiropyranindoline)

IT 216956-07-9, 1,3-Bis-chloroacetamidopropane
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with trimethylindolenine in synthesis of photochromic bis-benzospiropyranindoline)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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L40 ANSWER 6 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:309887 HCAPLUS
DN 129:86562
ED Entered STN: 28 May 1998
TI Investigation of the **interface formation** between calcium and tris-(8-hydroxy quinoline) aluminum

AU Choong, V.-E.; Mason, M. G.; Tang, C. W.; Gao, Yongli
CS Department of Physics and Astronomy, University of Rochester, Rochester, NY, 14627, USA
SO Applied Physics Letters (**1998**), 72(21), 2689-2691
CODEN: APPLAB; ISSN: 0003-6951
PB American Institute of Physics
DT Journal
LA English
CC 66-5 (Surface Chemistry and Colloids)
Section cross-reference(s): 73
AB X-ray and UV photoemission spectroscopy investigations reveal strong interactions between Ca and tris-(8-hydroxy quinoline) aluminum (Alq3) during the Ca/Alq3 interface formation. The details of the interaction depend on the direction of the interface formation. For the case of Ca deposited on Alq3, a staged interface reaction is observed For low Ca coverages ($\Theta Ca \leq 4$ Å), neg. charged Alq3 radical anions are formed by electron transfer from the Ca. The emergence of new states in the energy gap is observed in the UPS spectra. At higher coverages, the Ca reacts with the phenoxide oxygen resulting in the decomposition of the Alq3 mol. On the other hand, for the case of Alq3 deposited on Ca, a strong chemical reaction takes place as soon as Alq3 is deposited, and Ca attacks every constituent of Alq3. Finally, no interaction occurs between Alq3 and the Ca substrate if the substrate has been passivated by oxygen prior to the Alq3 deposition.
ST interfacial reaction calcium trishydroxyquinolinatoaluminum
IT Passivation
(effect on interface formation between calcium and tris-(8-hydroxyquinoline) aluminum)
IT Adsorbed substances
Decomposition
Electron transfer
Interfacial reaction
Solid-solid interface
(interface formation between calcium and tris-(8-hydroxyquinoline) aluminum)
IT **Electroluminescent** devices
(interface formation between calcium and tris-(8-hydroxyquinoline) aluminum in relation to)
IT 7440-70-2D, Calcium, oxidized, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(interface formation between calcium and tris-(8-hydroxyquinoline) aluminum)
IT **2085-33-8**, Tris-(8-hydroxy quinoline) aluminum 7440-70-2, Calcium, processes
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(interface formation between **calcium** and tris-(8-hydroxyquinoline) aluminum)
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Bradley, D; Adv Mater 1992, V4, P756 HCAPLUS
(2) Braun, D; Appl Phys Lett 1991, V58, P1982 HCAPLUS
(3) Brown, A; Appl Phys Lett 1992, V61, P2793 HCAPLUS
(4) Burroughes, J; Nature (London) 1990, V347, P539 HCAPLUS
(5) Burrows, P; J Appl Phys 1996, V79, P7991 HCAPLUS
(6) Choong, V; Unpublished
(7) Ettedgui, E; Appl Phys Lett 1995, V67, P2705 HCAPLUS
(8) Ettedgui, E; J Appl Phys 1994, V75, P7526 HCAPLUS
(9) Ettedgui, E; Phys Rev Lett 1996, V76, P299 HCAPLUS
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(12) Gao, Y; J Chem Phys 1992, V97, P6991 HCAPLUS
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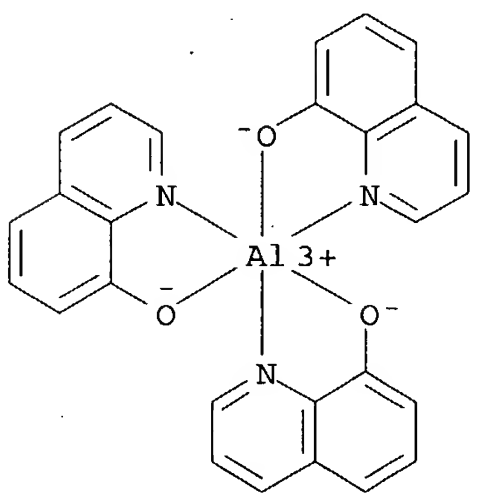
(14) Parker, I; J Appl Phys 1994, V75, P1656 HCAPLUS
(15) Probst, M; Appl Phys Lett 1997, V70, P1420 HCAPLUS
(16) Razafitrimo, H; Appl Phys Lett 1995, V67, P2621 HCAPLUS
(17) Razafitrimo, H; Polym Int 1995, V36, P147 HCAPLUS
(18) Tang, C; Appl Phys Lett 1987, V51, P913 HCAPLUS
(19) Tang, C; J Appl Phys 1989, V65, P3610 HCAPLUS

IT **2085-33-8**, Tris-(8-hydroxy quinoline) aluminum
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(interface formation between **calcium** and tris-(8-hydroxyquinoline) aluminum)

RN 2085-33-8 HCAPLUS
CN Aluminum, tris(8-quinolinolato-κN1,κO8)- (9CI) (CA INDEX NAME)



L40 ANSWER 7 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:247279 HCAPLUS
DN 129:1767
ED Entered STN: 01 May 1998
TI Effect of **carnosine** and its components on free-radical reactions
AU Klebanov, G. I.; Teselkin, Yu. O.; Babenkova, I. V.; Lyubitskii, O. B.; Rebrova, O. Yu.; Boldyrev, A. A.; Vladimirov, Yu. A.
CS Ross. Gos. Med. Univ., Moscow, 117869, Russia
SO Biologicheskie Membrany (**1998**), 15(1), 74-82
CODEN: BIMEE9; ISSN: 0233-4755
PB Nauka
DT Journal
LA Russian
CC 6-1 (General Biochemistry)
AB The antioxidant properties of carnosine and its components histidine and β-alanine, were compared using several model system: glutathione - horseradish peroxidase-luminol (GSH-HRP-luminol), xanthine-xanthine oxidase (xanthine-XO), stimulated human blood polymorphonuclear leukocytes (PMN), and egg yolk phospholipid liposomes in the presence of ferrous ions. Carnosine and histidine (30-40 mM) were shown to cause 50% suppression of free radical reactions in the GSH-HRP-luminol system, whereas β-alanine displayed no activity. The O2--scavenging activity of carnosine in the xanthine-XO system was demonstrated; 50% inhibition was achieved at 7.1·10-5 M. Suppression by carnosine of the luminol-dependent PMN **chemiluminescence** and reduction of the latent

period of the Fe2+-induced **chemiluminescence** of liposome suspension it was suggested to demonstrate its ability to interact with Ca2+ and Fe2+ ions. This fact was confirmed with o-phenanthroline test. The results obtained demonstrate that carnosine is able to scavenge different radicals and to bind divalent metal ions. The antioxidant activity of carnosine was observed in all the systems studied, and carnosine effective concns. corresponded to those found in brain and muscles. The universal effects of carnosine and its high concns. in excitable tissues make it possible to consider this dipeptide as an inhibitor of free radical reactions in vivo.

ST carnosine radical reaction superoxide scavenging; **chelating** **calcium** ferrous ion carnosine; antioxidant carnosine histidine beta alanine

IT Antioxidants
Polymorphonuclear leukocyte
(antioxidant and ion-chelating properties of carnosine and its components histidine and β-alanine)

IT Phospholipids, biological studies
Radicals, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(antioxidant and ion-chelating properties of carnosine and its components histidine and β-alanine)

IT Membrane, biological
(bilayer; antioxidant and ion-chelating properties of carnosine and its components histidine and β-alanine)

IT 9054-89-1, Superoxide dismutase
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(Superoxide dismutase-like activity; antioxidant and ion-chelating properties of carnosine and its components histidine and β-alanine)

IT 71-00-1, Histidine, biological studies 305-84-0, Carnosine
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(antioxidant and ion-chelating properties of carnosine and its components histidine and β-alanine)

IT 69-89-6, Xanthine 70-18-8, Glutathione, biological studies 521-31-3, Luminol **7440-70-2**, **Calcium**, biological studies
9002-17-9, Xanthine oxidase 9003-99-0, Peroxidase 11062-77-4, Superoxide 15438-31-0, Ferrous ion, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(antioxidant and ion-**chelating** properties of carnosine and its components histidine and β-alanine)

IT 107-95-9, β-Alanine
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(antioxidant and ion-chelating properties of carnosine and its components histidine and β-alanine)

IT **7440-70-2**, **Calcium**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(antioxidant and ion-**chelating** properties of carnosine and its components histidine and β-alanine)

RN 7440-70-2 HCAPLUS
CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

L40 ANSWER 8 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1991:256210 HCAPLUS
DN 114:256210
ED Entered STN: 28 Jun 1991
TI **Photophysical** study of the **calcium**(2+)-**chelator** QUIN 2 ligand: effect of divalent and trivalent cations
AU Guardigli, M.; Sabbatini, N.
CS Dip. Chim. "G. Ciamician", Univ. Bologna, Bologna, 40126, Italy
SO Chemical Physics Letters (**1991**), 179(5-6), 539-43
CODEN: CHPLBC; ISSN: 0009-2614
DT Journal
LA English
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
AB The photophys. properties of complexes of the Ca2+-chelator QUIN 2 ligand with divalent and trivalent cations were studied. The absorption of the ligand is almost independent of the nature of the complexing cations, while the fluorescence emission strongly depends on the elec. charge of the cations. Metal emission upon excitation in the ligand was observed for the Eu3+ complex, but not for the Tb3+ complex.
ST UV aminoquinoline deriv complex; phosphorescence aminoquinoline deriv complex; fluorescence aminoquinoline deriv complex; calcium aminoquinoline deriv complex fluorescence absorption; gadolinium aminoquinoline deriv complex fluorescence absorption; europium aminoquinoline deriv complex fluorescence absorption; terbium aminoquinoline deriv complex fluorescence absorption
IT **Fluorescence**
Phosphorescence
Ultraviolet and visible spectra
(of quinoline derivative complexes with divalent and trivalent cations)
IT 7440-54-2D, Gadolinium, bis(carboxymethyl)aminomethoxyquinolinylmethoxy(methylphenyl)carboxymethylglycine complex 83014-44-2D, rare-earth complexes 105900-12-7
RL: PRP (Properties)
(fluorescence and electronic absorption spectrum and phosphorescence of)
IT 7440-27-9D, Terbium, bis(carboxymethyl)aminomethoxyquinolinylmethoxy(methylphenyl)carboxymethylglycine complex 7440-53-1D, Europium, bis(carboxymethyl)aminomethoxyquinolinylmethoxy(methylphenyl)carboxymethylglycine complex
RL: PRP (Properties)
(fluorescence and electronic absorption spectrum of)

L40 ANSWER 9 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1985:593214 HCAPLUS
DN 103:193214
ED Entered STN: 14 Dec 1985
TI **Displacement** of calcium by sodium from the plasmalemma of root cells
AU Cramer, Grant R.; Laeuchli, Andre; Polito, Vito S.
CS Dep. Land, Air, and Water Resour., Univ. California, Davis, CA, 95616, USA
SO Plant Physiology (**1985**), 79(1), 207-11
CODEN: PLPHAY; ISSN: 0032-0889
DT Journal
LA English
CC 11-2 (Plant Biochemistry)
AB A microfluorometric assay using chlortetracycline (CTC) as a probe for membrane-associated Ca2+ in intact cotton (Gossyptium hirsutum) root hairs

indicated displacement of Ca2+ by Na+ from membrane sites with increasing levels of NaCl (0-250 mM). K+ (measured as 86Rb) efflux increased dramatically at high salinity. An increase in external Ca2+ concentration (10 mM) mitigated both responses. Other cations and mannitol, which did not affect Ca2+-CTC chelation properties, had no effect on Ca2+-CTC fluorescence, ethyleneglycol-bis-(β-aminoethyl ether) N,N'-tetraacetic acid, which does not cross membranes, provided an indication that reduction by Na+ of Ca2+-CTC fluorescence may be occurring primarily at the plasmalemma. Thus, Ca2+ protects membranes from adverse effects of Na+ thereby maintaining membrane integrity and minimizing leakage of cytosolic K+.

ST plasmalemma calcium sodium cotton

IT Cotton
(calcium binding by plasmalemma of, salt stress in relation to)

IT Cell membrane
(calcium binding by, of cotton root, salt stress in relation to)

IT Plant stress and adaptation
(from sodium chloride, cotton root response to, plasmalemma calcium binding in relation to)

IT **Fluorescence**
(of chlortetracycline-**calcium chelation**, salts effect on)

IT 57-62-5
RL: BIOL (Biological study)
(calcium binding to plasmalemma determined by, in cotton root, salt stress in relation to)

IT 7440-23-5, biological studies
RL: BIOL (Biological study)
(calcium displacement from plasmalemma by, in cotton root, salt stress in relation to)

IT 69-65-8 7447-40-7, biological studies 7447-41-8, biological studies 7647-14-5, biological studies 7647-17-8, biological studies 7791-11-9, biological studies 10361-37-2, biological studies
RL: BIOL (Biological study)
(calcium-chlortetracycline fluorescence modification by)

IT 7440-70-2, biological studies
RL: BIOL (Biological study)
(plasmalemma binding of, in cotton root, salt stress in relation to)

IT 7440-09-7, biological studies
RL: BIOL (Biological study)
(sodium-induced leakage of, from cotton roots, calcium displacement from plasmalemma in relation to)

6/14

L40 ANSWER 10 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1984:547122 HCAPLUS
DN 101:147122
ED Entered STN: 27 Oct 1984
TI Effect of **calcium chelators** on the **calcium** -dependent **luminescence** of **aequorin**
AU Shimomura, Osamu; Shimomura, Akemi
CS Mar. Biol. Lab., Woods Hole, MA, 02543, USA
SO Biochemical Journal (**1984**), 221(3), 907-10
CODEN: BIJOAK; ISSN: 0306-3275
DT Journal
LA English
CC 9-5 (Biochemical Methods)
AB The **luminescence** of aequorin, a useful tool for studying intracellular Ca2+, was recently found to be inhibited by the free EDTA and EGTA that are present in Ca buffers. In the present study, the effects of the free forms of various chelators were examined in the

calibration of [Ca2+] with aequorin. Free EDTA and EGTA in low-ionic-strength solns. strongly inhibited the Ca2+-triggered **luminescence** of aequorin, causing large errors in the calibration of [Ca2+] (.apprx.2 pCa units), whereas in solns. containing 150 mM KCl, errors were relatively small (0.2-0.3 pCa units). Citric acid in low-ionic-strength solns. and [(carbamoylmethyl)imino]diacetic acid in high-ionic-strength solns. showed no inhibition and did not cause detectable error in the calibration of [Ca2+], indicating that they are better chelators than EDTA and EGTA for use with aequorin.

ST aequorin **luminescence** inhibition **calcium chelator**; EDTA aequorin **luminescence** inhibition; EGTA aequorin **luminescence** inhibition

IT Aequorins
RL: PRP (Properties)
(**luminescence** of, **calcium chelators** effects on, **calcium** determination in relation to)

IT **Luminescence**
(of aequorin, **calcium chelators** effects on, **calcium** determination in relation to)

IT **7440-70-2**, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination of, with aequorin, aequorin **luminescence** inhibition by **calcium chelators** in relation to)

IT 26239-55-4 77-92-9, uses and miscellaneous
RL: ANST (Analytical study)
(in calcium determination by aequorin **luminescence**)

IT 139-13-9
RL: ANST (Analytical study)
(inhibition by, of aequorin **luminescence**, calcium determination in relation to)

IT 60-00-4, uses and miscellaneous 67-42-5
RL: USES (Uses)
(inhibition by, of aequorin **luminescence**, in low-ionic strength solution, calcium determination in relation to)

IT **7440-70-2**, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination of, with aequorin, aequorin **luminescence** inhibition by **calcium chelators** in relation to)

RN 7440-70-2 HCAPLUS
CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

L40 ANSWER 11 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1975:148928 HCAPLUS
DN 82:148928
ED Entered STN: 12 May 1984
TI Properties of **Calcein Blue**
AU Huitink, Geraldine M.; Poe, Donald P.; Diehl, Harvey
CS Dep. Chem., Iowa State Univ., Ames, IA, USA
SO Talanta (**1974**), 21(12), 1221-9
CODEN: TLNTA2; ISSN: 0039-9140
DT Journal
LA English
CC 79-3 (Inorganic Analytical Chemistry)
Section cross-reference(s): 40, 68
AB Calcein Blue (I) prepared by condensation of 4-methylumbelliferone, H2CO,

and disodium iminodiacetate was demonstrated by elemental anal. and by its equivalent weight (determined by neutralization) and NMR spectrum to be 4-methylumbelliferon-8-ylmethyliminodiacetic acid. Acid dissociation consts. of I were determined to be pK1 = 3.0, pK2 = 6.9, and pK3 = 11.3 from studies of uv absorbance and fluorescence as a funtion of pH and from potentiometric titration and solubility data. The free I is a zwitter ion which fluoresces in both acidic and basic solns. and which reacts with Ca to form a 1:1 compound with a formation constant of 10 7.1. The Ca derivative fluoresced at 360 nm, and the fluorescence intensity increased linearly with Ca concentration The fluorescence of I was quenched by Cu(II) at all pH values. Since the Ca compound with I was stable for only 1 hr in highly alkaline solution, I can be used as an indicator but not as a reagent for the direct fluorometric determination of Ca.

ST Calcein Blue; indicator Calcein Blue; dissocn const Calcein Blue; fluorescence Calcein Blue; spectra Calcein Blue; NMR Calcein Blue; calcium compd Calcein Blue; copper quenching Calcein Blue fluorescence

IT Indicators
(**chelatometric** fluorometric, for **calcium** determination, calcein blue as)

IT Molecular structure-property relationship
(fluorescence, of calcein blue)

IT Ionization in liquids
Molecular structure
(of calcein blue)

IT **Fluorescence**
(of calcein blue and calcein blue-calcium complex)

IT Nuclear magnetic resonance
(of calcein blue and methylumbelliferone)

IT Fluorescence quenching
(of calcein blue, by copper)

IT Formation constant and Stability constant
(of calcein blue-calcium complex)

IT Copper, calcein blue complex
RL: PRP (Properties)
(formation consts. of)

IT 35310-51-1
RL: ANST (Analytical study)
(acid dissociation consts. and fluorescence and use of, in determination of calcium)

IT 7440-70-2, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination of, calcein blue as indicator for fluorometric titrimetric)

IT 55939-03-2
RL: ANST (Analytical study)
(fluorescence and formation consts. of)

IT 7440-50-8, properties
RL: PRP (Properties)
(fluorescence quenching by, of calcein blue)

IT 90-33-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with disodium iminodiacetate and formaldehyde)

IT 928-72-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with formaldehyde and methylumbelliferone)

IT 50-00-0, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(with disodium iminodiacetate and methylumbelliferone)

L40 ANSWER 12 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1971:430211 HCAPLUS
DN 75:30211
ED Entered STN: 12 May 1984
TI Selectivity of cation **chelation** to **tetracyclines**: evidence for special conformation of **calcium chelate**
AU Caswell, A. H.; Hutchison, J. D.
CS Dep. Pharmacol., Univ. Miami, Miami, FL, USA
SO Biochemical and Biophysical Research Communications (**1971**), 43(3), 625-30
CODEN: BBRCA9; ISSN: 0006-291X
DT Journal
LA English
CC 2 (General Biochemistry)
AB Tetracycline antibiotics in apolar solvents chelate to Ca in a different conformation from that of the Mg chelate. Evidence for this different conformation is adduced from the fluorescence, absorption, and CD spectra of the antibiotic bound to Ca and Mg. The conformation of the antibiotic chelated to Ca is a high affinity form. Only those divalent cations of a size similar to or greater than that of Ca are able to induce this conformation. Liganding, between both the A ring and the BCD ring conjugated system, is proposed.
ST **calcium chelate** tetracycline; magnesium **chelate** tetracycline
IT Dichroism
(circular, of tetracycline derivative complexes with calcium)
IT **Fluorescence**
(of tetracycline derivative complexes with calcium)
IT 2-Naphthacenecarboxamide, 4-(dimethylamino)-1,4,4a,5,5a,6,11,12a-octahydro-3,6,10,12,12a-pentahydroxy-6-methyl-1,11-dioxo-, copper complexes
Copper, with 4-(dimethylamino)-1,4,4a,5,5a,6,11,12a-octahydro-3,6,10,12,12a-pentahydroxy-6-methyl-1,11-dioxo-2-naphthacenecarboxamide derivs.
RL: PRP (Properties)
(conformation of)

L40 ANSWER 13 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1962:413958 HCAPLUS
DN 57:13958
OREF 57:2828d-e
ED Entered STN: 22 Apr 2001
TI Fluorescent and **chemiluminescent** indicators in **chelometric** titrations
AU Martinez, F. Bermejo; Badrinas, A.; Bouza, A. Prieto
CS Univ. Santiago Compostela, Spain
SO Inform. Quire. Anal. (Madrid) (**1960**), 14, 151-70
DT Journal
LA Unavailable
CC 2 (Analytical Chemistry)
AB The advantages of fluorescent indicators for end-point determination in chelometric titrations are discussed. 7-(2-Hydroxy-4-sulfonaphthylazo)-8-quinolinol and its analogs, and bisglycine 2,3-dichlorofluorescein are proposed as metallofluorochromic indicators for chelometric titration of Mg, Ca, Cu, Co, Ni, Fe, Cr, Zn, Cd, and V. The reaction mech. of **chemiluminescent** indicators used for chelometric detns. is presented, and the use of luminol and lucigenin for the determination of Cu and other cations is reviewed.
IT Indicators (for titration)
(**chemiluminescent** and fluorescent, in chelatometry)
IT Thermodynamics

(of deuterium, H and DH)
IT 7439-89-6, Iron 7439-95-4, Magnesium 7440-02-0, Nickel 7440-43-9, Cadmium 7440-47-3, Chromium 7440-48-4, Cobalt 7440-50-8, Copper 7440-62-2, Vanadium 7440-66-6, Zinc **7440-70-2, Calcium**
(analysis, determination, **chelatometric**)
IT 25639-39-8, Fluorescein, bis[[(carboxymethyl)amino]methyl]-4',5'-dichloro- 43145-12-6, 5-Quinolinesulfonic acid, 8-hydroxy-7-[(2-hydroxy-4-sulfo-1-naphthyl)azo]- 94211-12-8, 1-Naphthalenesulfonic acid, 3-hydroxy-4-[(8-hydroxy-7-quinolyl)azo]- 94998-11-5, 5-Quinolinesulfonic acid, 8-hydroxy-7-[(2-hydroxy-1-naphthyl)azo]- 94998-17-1, 2,7-Naphthalenedisulfonic acid, 3-hydroxy-4-[(8-hydroxy-5-sulfo-7-quinolyl)azo]-
(as metallofluorochromic indicator in chelatometry)
IT 2315-97-1, 9,9'-Biacridinium, 10,10'-dimethyl-, dinitrate
(in Cu determination)
IT 521-31-3, 1,4-Phthalazinedione, 5-amino-2,3-dihydro-
(in copper determination)
IT **7440-70-2, Calcium**
(analysis, determination, **chelatometric**)
RN 7440-70-2 HCAPLUS
CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

L40 ANSWER 14 OF 14 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1962:66674 HCAPLUS
DN 56:66674
OREF 56:12776d-i
ED Entered STN: 22 Apr 2001
TI Substituted **benzidines** and related compounds as reagents in analytical chemistry. XVII. The N,N,N',N'-tetracarboxymethyl derivatives of some 3,3'-disubstituted **benzidines**
AU Rees, D. I.; Stephen, W. I.
CS Univ. Birmingham, UK
SO Journal of the Chemical Society, Abstracts (**1961**) 5101-5
CODEN: JCSAAZ; ISSN: 0590-9791
DT Journal
LA Unavailable
CC 29 (Noncondensed Aromatic Compounds)
AB cf. CA 55, 5228h. N,N,N',N'-Tetracarboxymethyl derivs. of some 3,3'-disubstituted benzidines were prepared and their properties as anal. reagents examined The dimethoxy and diethoxy derivs. were particularly useful as metallofluorescent indicators in the titration of Cu(II) and Hg(II) with ethylene-diaminetetraacetic acid (I). A similar but less sensitive reaction was shown by 3,3'-dicarboxybenzidine-N,N,N',N'-tetraacetic acid in the titration of Ca with I. o-Dianisidine (24.4 g.) suspended in 100 ml. H2O containing a small amount of phenolphthalein, the mixture heated on a steam bath, treated dropwise simultaneously with 49 g. ClCH2CO2Na (II) in 100 ml. H2O and 2N Na2CO3 with stirring, keeping the pH at 8.0 (when addition of II was complete the reaction allowed to proceed until further addns. of 2N Na2CO3 were unnecessary), the mixture filtered, the filtrate treated with concentrated aqueous BaCl2 until precipitation was complete, warmed 30 min. on a steam bath, the precipitate filtered off, washed with H2O, and dried in vacuo gave 80 g. o-dianisidine-N,N,N',N'-tetraacetic acid (III) Ba salt (IV). IV suspended in H2O, the mixture treated with the

required amount of aqueous Na2SO4, heated and stirred 1 hr. on a steam bath, filtered, and the filtrate treated slowly with EtOH until precipitation was complete gave 46.3 g. crude tetra-Na salt (V) of III. Crude V (30 g.) dissolved in sufficient H2O, the solution boiled briefly with C, filtered, the filtrate diluted slowly with EtOH until precipitation just occurred, the precipitate
filtered off, the filtrate diluted with a large excess of EtOH, and stirred gave 12 g. V, sufficiently pure for use in the anal. studies of its properties as an indicator but still containing inorg. salts as impurities. The latter V (10 g.) suspended in 50 ml. EtOH, the mixture treated with a stream of HCl until conversion of V into the free acid was judged to be complete, the NaCl filtered off, the filtrate concentrated in vacuo to 1/2 its volume, the filtered solution poured into NaOEt solution (from 2 g. Na in 100 ml.
EtOH), and the hygroscopic precipitate filtered off gave V.2H2O. Similarly were
prepared the following complexan salts of benzidine derivs. (benzidine derivative and % yield given): benzidine, 47; o-diphenetidine, 29; o-tolidine, 59; 3,3'-bis(carboxymethoxy)benzidine, 59; 3,3'-dicarboxybenzidine, 17; 3,3'-disulfobenzidine 25. Only the o-diphenetidine complexan was further purified via the free acid, the anhydrous tetra-Na salt forming a dihydrate on exposure to moist air.

IT Analysis
(benzidine derivs. in)

IT Indicators (for titration)
(chelatometric, (4,4'-biphenylylenedinitrilo)tetraacetic acid derivs. as)

IT **Fluorescence**
(of (4,4'-biphenylylenedinitrilo)tetraacetic acid derivs.)

IT 3,3'-Biphenyldicarboxylic acid, 4,4'-bis[bis(carboxymethyl)amino]-, barium salt
3,3'-Biphenyldicarboxylic acid, 4,4'-bis[bis(carboxymethyl)amino]-, sodium salt
Acetic acid, (4,4-biphenylylenedinitrilo)tetra-, barium salt
Acetic acid, (4,4-biphenylylenedinitrilo)tetra-, sodium salt
Acetic acid, [(3,3'-diethoxy-4,4'-biphenylylene)dinitrilo]tetra-, barium salt
Acetic acid, [(3,3'-diethoxy-4,4'-biphenylylene)dinitrilo]tetra-, sodium salt
Acetic acid, [(3,3'-dimethoxy-4,4'-biphenylylene)dinitrilo]tetra-, barium salt
Acetic acid, [(3,3'-dimethoxy-4,4'-biphenylylene)dinitrilo]tetra-, sodium salt
Acetic acid, [(3,3'-dimethyl-4,4'-biphenylylene)dinitrilo]tetra-, barium salt
Acetic acid, [(3,3'-dimethyl-4,4'-biphenylylene)dinitrilo]tetra-, sodium salt
Acetic acid, [(3,3'-disulfo-4,4-biphenylylene)dinitrilo]tetra-, barium salt
Acetic acid, [(3,3'-disulfo-4,4-biphenylylene)dinitrilo]tetra-, sodium salt
Acetic acid, [[3,3'-bis(carboxymethoxy)-4,4'-biphenylylene]dinitrilo]tetra-, barium salt
Acetic acid, [[3,3'-bis(carboxymethoxy)-4,4'-biphenylylene]dinitrilo]tetra-, sodium salt

IT 7439-97-6, Mercury 7440-50-8, Copper **7440-70-2**, **Calcium**
(analysis, determination, **chelatometric**)

IT 92-87-5, Benzidine
(derivs., in analysis)

IT **7440-70-2, Calcium**
(analysis, determination, **chelatometric**)
RN 7440-70-2 HCAPLUS
CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

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L61 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:911536 HCAPLUS
DN 134:68413
ED Entered STN: 29 Dec 2000
TI Method and apparatus for conducting **chemiluminescent binding assay**
IN Gawad, Yahia
PA Cardiogenics, Inc., Can.
SO PCT Int. Appl., 40 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM G01N033-533
ICS G01N033-58
CC 9-1 (Biochemical Methods)
Section cross-reference(s): 8
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000079276	A1	20001228	WO 2000-CA718	20000615 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	EP 1194781	A1	20020410	EP 2000-938417	20000615 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2003502670	T2	20030121	JP 2001-505193	20000615 <--
PRAI	US 1999-139941P	P	19990618 <--		
	WO 2000-CA718	W	20000615 <--		

AB A method for conducting a receptor-ligand binding reaction of a solution containing or suspected of containing the target analyte is disclosed. The method
comprises the steps of bonding the first binding partner to the surface of a paramagnetic particle, conjugating a second binding partner to a calcium-sensitive luminescent compound; contacting the first and second binding partners with the solution to be tested, immobilizing the paramagnetic particles along a capture strip that has a transverse stripe containing streptavidin and containing a caged calcium compound, exposing the transverse stripe to a pulse of UV light to effect the release of calcium from the caged calcium compound, and measuring luminescence emitted by the calcium-sensitive luminescent material. The method may be used in the

testing of blood. An apparatus is also disclosed. Aeqorin was added to a solution of buffered 1-(4,5 dimethoxy-2-nitrophenyl)-1,2 diaminoethane-N,N,N',N'-tetraacetic acid loaded with CaCl2. Photoemission was monitored for 30 s at 470 nm. When the solution was photolysed with 347 nm UV light pulsed at 100 mJ, sufficient Ca was released to trigger photoemission from aequorin.

ST chemiluminescent binding assay **calcium** sensitive luminescent compd; **aequorin calcium** cage compd chemiluminescent binding assay; biochem analysis app chemiluminescent binding assay

IT Proteins, specific or class
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(berovins, conjugates with binding partner; method and apparatus for conducting chemiluminescent binding assay)

IT Analytical apparatus
(biochem.; method and apparatus for conducting chemiluminescent binding assay)

IT Luminescent substances
(calcium-sensitive, conjugates with binding partner; method and apparatus for conducting chemiluminescent binding assay)

IT Containers
(cartridges; method and apparatus for conducting chemiluminescent binding assay)

IT Immunoassay
(chemiluminescence; method and apparatus for conducting chemiluminescent binding assay)

IT Aequorins
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(conjugates with binding partner; method and apparatus for conducting chemiluminescent binding assay)

IT UV radiation
(for caged calcium release; method and apparatus for conducting chemiluminescent binding assay)

IT Cage compounds
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(for calcium, immobilized; method and apparatus for conducting chemiluminescent binding assay)

IT Filters
Filtration
(for removal of calcium; method and apparatus for conducting chemiluminescent binding assay)

IT Spectrometers
(luminescence; method and apparatus for conducting chemiluminescent binding assay)

IT Bioassay
Blood analysis
Chemiluminescence spectroscopy
Chemiluminescent substances
Electromagnets
Sample preparation
(method and apparatus for conducting chemiluminescent binding assay)

IT Antibodies
Antigens
Nucleic acids
RL: ANT (Analyte); ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(method and apparatus for conducting chemiluminescent binding assay)

IT Ligands
Receptors
RL: ANT (Analyte); ARG (Analytical reagent use); DEV (Device component

use); ANST (Analytical study); USES (Uses)
(method and apparatus for conducting chemiluminescent binding assay)

IT Polyamides, analysis
Polymers, analysis
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(method and apparatus for conducting chemiluminescent binding assay)

IT Proteins, specific or class
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(mnemiopsins, conjugates with binding partner; method and apparatus for conducting chemiluminescent binding assay)

IT Proteins, specific or class
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(obelins, conjugates with binding partner; method and apparatus for conducting chemiluminescent binding assay)

IT Phosphoproteins
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(of Pelagia and Cypridina and ostracods, conjugates with binding partner; method and apparatus for conducting chemiluminescent binding assay)

IT Immobilization, biochemical
(of binding partner on paramagnetic particles; method and apparatus for conducting chemiluminescent binding assay)

IT Particles
(paramagnetic, conjugates with binding partner; method and apparatus for conducting chemiluminescent binding assay)

IT Cypridina
Ostracoda
Pelagia
(phosphoproteins of; method and apparatus for conducting chemiluminescent binding assay)

IT Analytical apparatus
(test strips; method and apparatus for conducting chemiluminescent binding assay)

IT **Luminescence spectroscopy**
(time-resolved; method and apparatus for conducting chemiluminescent binding assay)

IT 7440-70-2, Calcium, uses
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(caged; method and apparatus for conducting chemiluminescent binding assay)

IT 9014-00-0D, Luciferase, conjugates with binding partner 10043-52-4, Calcium chloride, uses 96827-88-2D, Pholasin, conjugates with binding partner
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(method and apparatus for conducting chemiluminescent binding assay)

IT 9013-20-1D, Streptavidin, immobilized 109232-36-2D, conjugates 109267-14-3D, conjugates 117367-86-9D, conjugates 163391-19-3D, conjugates
RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
(method and apparatus for conducting chemiluminescent binding assay)

IT 9003-05-8, Polyacrylamide 9004-70-0, Nitrocellulose
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(method and apparatus for conducting chemiluminescent binding assay)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Dade Behring Inc; WO 9830908 A 1998 HCAPLUS
(2) Ela Technologies Inc; EP 0437013 A 1991
(3) Kendall, J; TRENDS IN BIOTECHNOLOGY 1998, V16(5), P216 HCAPLUS

Searched by Noble Jarrell 272-2556

(4) Packard Instrument Co Inc; WO 9938999 A 1999 HCAPLUS
(5) Stults, N; US 5486455 A 1996 HCAPLUS

L61 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:438360 HCAPLUS
DN 131:308469
ED Entered STN: 16 Jul 1999
TI An Automated **Aequorin Luminescence**-Based Functional **Calcium** Assay for G-Protein-Coupled Receptors
AU Ungrin, Mark D.; Singh, Laila M. R.; Stocco, Rino; Sas, Dean E.; Abramovitz, Mark
CS Department of Biochemistry and Molecular Biology, Merck Frosst Center for Therapeutic Research, Pointe Claire-Dorval, QC, H9R 4P8, Can.
SO Analytical Biochemistry (**1999**), 272(1), 34-42
CODEN: ANBCA2; ISSN: 0003-2697
PB Academic Press
DT Journal
LA English
CC 9-5 (Biochemical Methods)
AB We describe in detail an automated and highly sensitive functional assay for calcium-coupled receptors (those receptors whose activation results in an increase in intracellular calcium levels) utilizing coelenterazine-charged aequorin as a probe for intracellular calcium levels ([Ca2+]i). The assay was originally established to investigate Gαq-coupled prostanoid receptors, which are members of the G-protein-coupled receptor (GPCR) superfamily, signaling through elevation of [Ca2+]i, initially focusing on the human EP1 prostanoid receptor (hEP1). The parental human embryonic kidney cell line 293-AEQ17, developed by Button and Brownstein (Cell Calcium 14, 663-671, 1993), constitutively expresses apoaequorin and was used to develop a clonal cell line which stably coexpresses hEP1. This cell line was used to optimize assay parameters in order to maximize accuracy and throughput in an automated 96-well format with the result that each 96-well plate can be completed in 70 min. Use of this flexible system will greatly simplify the functional anal. of GPCRs and other receptors which when activated result in increases in [Ca2+]i. (c) 1999 Academic Press.
ST automated **aequorin** luminescence functional **calcium** assay; G protein coupled receptor
IT Animal cell line
(293-AEQ17; automated **aequorin** luminescence-based functional **calcium** assay for G-protein-coupled receptors)
IT Prostanoid receptors
RL: ANT (Analyte); ANST (Analytical study)
(Gαq-Coupled; automated **aequorin** luminescence-based functional **calcium** assay for G-protein-coupled receptors)
IT Prostanoid receptors
RL: ANT (Analyte); ANST (Analytical study)
(Human EP1; automated **aequorin** luminescence-based functional **calcium** assay for G-protein-coupled receptors)
IT Embryo, animal
Kidney
Luminescence spectroscopy
Signal transduction, biological
(automated **aequorin** luminescence-based functional **calcium** assay for G-protein-coupled receptors)
IT G protein-coupled receptors
Receptors
RL: ANT (Analyte); ANST (Analytical study)
(automated **aequorin** luminescence-based functional **calcium** assay for G-protein-coupled receptors)

IT **Aequorins**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(automated **aequorin** luminescence-based functional **calcium** assay for G-protein-coupled receptors)
IT **7440-70-2**, **Calcium**, analysis
RL: ANT (Analyte); ANST (Analytical study)
(automated **aequorin** luminescence-based functional **calcium** assay for G-protein-coupled receptors)
IT 55779-48-1, Coelenterazine
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(automated **aequorin** luminescence-based functional **calcium** assay for G-protein-coupled receptors)
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Abramovitz, M; J Biol Chem 1994, V269, P2632 HCAPLUS
(2) Abramovitz, M; to be published in Biochim Biophys Acta 1999
(3) Boie, Y; Eur J Pharmacol 1997, V340, P227 HCAPLUS
(4) Brini, M; J Biol Chem 1995, V270, P9896 HCAPLUS
(5) Button, D; Cell Calcium 1993, V14, P663 HCAPLUS
(6) Clapham, D; Cell 1995, V80, P259 HCAPLUS
(7) Coleman, R; Comprehensive Medicinal Chemistry 1989, V3, P643
(8) Feighner, S; to be published in Science 1999
(9) Funk, C; J Biol Chem 1993, V268, P26767 HCAPLUS
(10) Hamdan, F; J Neurochem 1999, V72, P1372 HCAPLUS
(11) Lawrence, R; Br J Pharmacol 1992, V105, P271 HCAPLUS
(12) Lynch, K; to be published in Nature 1999
(13) Offermanns, S; J Biol Chem 1995, V270, P15175 HCAPLUS
(14) Sandberg, K; FEBS Lett 1988, V241, P177 HCAPLUS
(15) Sheu, Y; Anal Biochem 1993, V209, P343 HCAPLUS
(16) Shimomura, O; Biochem Biophys Res Commun 1995, V211, P359 HCAPLUS
(17) Shimomura, O; Biochem J 1989, V261, P913 HCAPLUS
(18) Shimomura, O; J Cell Comp Physiol 1962, V59, P223 HCAPLUS
(19) Stables, J; Anal Biochem 1997, V252, P115 HCAPLUS
IT **7440-70-2**, **Calcium**, analysis
RL: ANT (Analyte); ANST (Analytical study)
(automated **aequorin** luminescence-based functional **calcium** assay for G-protein-coupled receptors)
RN 7440-70-2 HCAPLUS
CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

L61 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1996:336499 HCAPLUS
DN 125:5053
ED Entered STN: 11 Jun 1996
TI **White trigger preparations** for improving signal detection of bio- and chemiluminescent reactions
IN Weindel, Kurt; Hornauer, Hans
PA Boehringer Mannheim Gmbh, Germany
SO Eur. Pat. Appl., 17 pp.
CODEN: EPXXDW
DT Patent
LA German
IC ICM G01N021-77
CC 9-5 (Biochemical Methods)
Section cross-reference(s): 3, 15, 80

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 710833	A2	19960508	EP 1995-117289	19951102 <--
	EP 710833	A3	19991006		
	R: AT, CH, DE, ES, FR, GB, IT, LI				
	DE 4439348	A1	19960509	DE 1994-4439348	19941104 <--
	US 6197594	B1	20010306	US 1995-552795	19951103 <--
	JP 08211059	A2	19960820	JP 1995-287616	19951106 <--
	JP 2793533	B2	19980903		
PRAI	DE 1994-4439348	A	19941104 <--		

AB A method is disclosed for detecting an analyte in a sample by luminescence assay according to the principal of ligand-receptor assay (e.g., immunoassay, hybridization assay, or combination of them) in which the sample is incubated with a receptor (e.g., antibody, antigen, hapten, nucleic acid, etc.) that bears a luminescent label (e.g., Ca-activatable photoprotein such as aequorin), and the presence and/or the amount of the selected analyte is determined by luminescence measurement in a measuring medium that contains dispersed components. Use of such a dispersion causes randomization of the light generated in the luminescence reaction, and possibly the production of a preferred direction of light scattering, and leads to a considerable increase in the sensitivity and precision of the luminescence measurement. The measuring medium can contain a suspension or colloidal solution (sol) of solid particles (e.g., styrene polymers, acrylate polymers, various latexes, etc.), or the medium can contain a lipid emulsion in water (e.g., homogenized milk, soy lipids, or micellar substances). One example is the determination of TSH by bioluminescence immunoassay using a streptavidin-coated reaction vessel, biotinylated anti-TSH IgG, anti-TSH IgG-aequorin conjugate, and a white trigger solution containing Ca2+ and amidine latex beads in buffer.

ST luminescence analysis biomol white trigger prepn; immunoassay bioluminescence white trigger emulsion; chemiluminescence assay **calcium** white trigger emulsion; white emulsion luminescence analysis signal enhancement; **aequorin calcium** luminescence analysis lipid emulsion

IT Light
(scattering; white trigger prepns. for improving signal detection in bio- and chemiluminescence reactions)

IT Colloids
Emulsions
Latex
Luminescent substances
Micelles
Milk
Nephelometry
Nucleic acid hybridization
Sols
Suspensions
(white trigger prepns. for improving signal detection in bio- and chemiluminescence reactions)

IT Aequorins
Antibodies
Antigens
Haptens
Nucleic acids
Receptors
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(white trigger prepns. for improving signal detection in bio- and chemiluminescence reactions)

IT Acrylic polymers, analysis

RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(white trigger prepns. for improving signal detection in bio- and chemiluminescence reactions)

IT Lipids, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(white trigger prepns. for improving signal detection in bio- and chemiluminescence reactions)

IT Soybean oil
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(white trigger prepns. for improving signal detection in bio- and chemiluminescence reactions)

IT Immunoglobulins
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(G, biotinylated; white trigger prepns. for improving signal detection in bio- and chemiluminescence reactions)

IT Immunoassay
Spectrochemical analysis
(**bioluminescence**, white trigger prepns. for improving signal detection in bio- and **chemiluminescence** reactions)

IT **Spectrochemical analysis**
(**chemiluminescence**, white trigger prepns. for improving signal detection in bio- and **chemiluminescence** reactions)

IT Soybean oil
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(phospholipid-stabilized, white trigger prepns. for improving signal detection in bio- and chemiluminescence reactions)

IT Proteins, specific or class
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(photo-, white trigger prepns. for improving signal detection in bio- and chemiluminescence reactions)

IT 1672-46-4, Digoxigenin 9002-71-5, Thyrotropin
RL: ANT (Analyte); ANST (Analytical study)
(white trigger prepns. for improving signal detection in bio- and chemiluminescence reactions)

IT 7440-70-2, Calcium, uses 9013-20-1, Streptavidin
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(white trigger prepns. for improving signal detection in bio- and chemiluminescence reactions)

IT 9003-53-6, Polystyrene 9003-55-8, Butadiene-styrene copolymer
9005-64-5, Tween 20 9011-14-7, Polymethylmethacrylate 9017-21-4, Polyvinyltoluene 52291-97-1, tert-Butylstyrene-vinyltoluene copolymer
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(white trigger prepns. for improving signal detection in bio- and chemiluminescence reactions)

L61 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1995:750877 HCAPLUS
DN 123:164357
ED Entered STN: 23 Aug 1995
TI **Modified aequorin** shows increased bioluminescence activity
AU Prasher, D. C.
CS Dept. of Biology, Woods Hole Oceanographic Inst., MA, USA
SO Report (**1993**), Order No. AD-A268 774, 10 pp. Avail.: NTIS
From: Gov. Rep. Announce. Index (U. S.) 1993, 93(24), Abst. No. 375,008
DT Report
LA English
CC 9-5 (Biochemical Methods)
Section cross-reference(s): 79
AB Aequorin belongs to a unique class of photoproteins that emit light upon

the binding of certain metals, calcium being the principal intracellular activator. This reporting function of the metal-binding is instantaneous and is very easy to quantitate exptl. The project objective was to develop a variety of recombinant forms of aequorin so they can be employed as metal biosensors. Three calcium-binding sites of aequorin were modified to examine their roles in the calcium-dependent luminescence as well as potentially binding other metal ions. Aequorins having Site 2 substitutions unexpectedly produce more light than wild type aequorin.

ST **calcium** metal detection modified recombinant **aequorin**

IT Luminescence, bio-
(modified aequorin shows increased bioluminescence activity)

IT Aequorins
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(modified; modified aequorin shows increased bioluminescence activity)

IT **Spectrochemical analysis**
(**bioluminescence**, modified aequorin shows increased **bioluminescence** activity)

IT Trace elements, analysis
RL: ANT (Analyte); ANST (Analytical study)
(metals, modified aequorin shows increased bioluminescence activity)

IT **7440-70-2, Calcium**, analysis
RL: ANT (Analyte); ANST (Analytical study)
(modified **aequorin** shows increased bioluminescence activity)

IT **7440-70-2, Calcium**, analysis
RL: ANT (Analyte); ANST (Analytical study)
(modified **aequorin** shows increased bioluminescence activity)

RN 7440-70-2 HCAPLUS

CN Calcium (8CI, 9CI) (CA INDEX NAME)

Ca

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